

SEQUENCE LISTING

<110> JESTIN, Andre

ALBINA, Emanuel

Le CANN, Pierre

BLANCHARD, Phillipe

HUTET, Evelyne

ARNAULD, Claire

TRUONG, Catherine

MAHE, Dominique

CARIOLET, Roland

MADEC, Francois

<120> CIRCOVIRUS SEQUENCES ASSOCIATED WITH PIGLET WEIGHT LOSS DISEASE  
(PWD)

<130> 065691/0176

<140> US 09/514,245

<141> 2000-02-28

<150> FR 97/15396

<151> 1997-12-05

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<170> PatentIn version 3.0

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Pro Ser Phe Arg Gly Gly Glu Lys Gln Asn Thr Gly Ala Ser	
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Asn Leu Pro Phe Leu Phe Cys Leu Trp Arg Gly Arg Phe Gly Arg	
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Asp Phe Gln Gly Glu Val Val Phe Trp Cys Pro Leu Pro His Arg	
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Glu Ser Glu Arg Asn Arg Pro Ala Glu Arg Ile Leu Gln Arg	
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Arg Pro His Thr Tyr Arg Val Trp Ser Ser Ala Glu Pro Gly Glu Ala	
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Gln Arg Pro Val Tyr Cys Cys Glu Tyr Pro Phe Gly Asp Gly Val Phe	
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Gly Asp Cys Ser Arg Ala Val Ser Cys Asn Val Cys Glu Lys Phe Pro	
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Leu Glu Asp Ser Cys Thr Arg His Ser Gly Pro Ala Arg Leu Trp Glu	
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Glu Pro Val Gly Pro Phe Cys Ala Gly His Leu Leu Glu	
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Ala Lys Val Val Gly Trp Ile Ser Trp Arg Arg Ser Cys	
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Cys Phe Gly Phe Leu Trp Leu Val Thr Leu Gly Ser Thr Glu	
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Thr Val Pro Val Ser Ile Asp Cys Arg Asp Arg Gly Tyr Cys	
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tcc ttt ttt ggc ccg cag tat ttt gat tac cag caa tca ggc ccc cca	816
Ser Phe Phe Gly Pro Gln Tyr Phe Asp Tyr Gln Gln Ser Gly Pro Pro	
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Gly Met Val Leu Leu Asn Cys Cys Pro Ser Cys Arg Ser Ser Leu Ser	
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Glu Asp Tyr Tyr Phe Ala Ile Leu Glu Asp Cys Trp Arg Thr Ile His	
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Gly Gly Thr Arg Arg Pro Ile Ser Ser Gly Pro Thr Leu Cys Pro	
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ttt ccc ata taa aat aaa tta ctg agt ctt ttt tgt tat cac atc gta	1008
Phe Pro Ile Asn Lys Leu Leu Ser Leu Phe Cys Tyr His Ile Val	
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Met Val Phe Ile Phe Ile His Leu Glu Gly Leu Ser Gly Ile Leu	
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tga att gta cat aaa tag tca acc tta cca cat aat ttt ggg ctg tgg	1104
Ile Val His Lys Ser Thr Leu Pro His Asn Phe Gly Leu Trp	
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Leu His Phe Gly Ala His Ser Pro Gly Leu Cys Ala Arg His Trp Cys	
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Gly Tyr Leu Asn Gly Ala Thr Ala Gly Phe Phe Tyr Tyr Leu Ala Gly	
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acc aat caa ttg ttt ggt cta gct ctg gtt tgg ggg tga agt acc tgg	1248
Thr Asn Gln Leu Phe Gly Leu Ala Leu Val Trp Gly Ser Thr Trp	
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agt ggt agg taa agg gct gcc tta tgg tgt ggc ggg agg agt agt taa	1296
Ser Gly Arg Arg Ala Ala Leu Trp Cys Gly Gly Arg Ser Ser	
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Tyr Arg Gly His Arg Pro Ser Trp Trp Arg Gly Leu Gln Ser Trp His	
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cca aga taa caa cag tgg acc caa cac ctc ttt gat tag agg tga tgg	1392
Pro Arg Gln Gln Trp Thr Gln His Leu Phe Asp Arg Trp	
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Gly Leu Trp Gly Lys Ile His Ile Pro Phe Tyr Gly Ser Ile	
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Gly Lys Val Gly Val Gly Gly Trp Cys Arg Leu Arg Gly Gly Gly Thr	
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Gly Arg Cys Ile Ser Ala Arg His Ser Lys Met Ala Ala Ser	
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Val Leu Leu Leu Trp Val Gln Ile Leu Lys Gly Gly Asn	
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Arg Tyr Pro Ser Phe Gly Ala Ile Cys Asn Gly Phe Arg Arg Gly	
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Val Pro Asn Met Val Phe Ser Gly Gly Cys Phe Gln Asp Gly Cys Gly	
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Gly Gly Ser Val Phe Cys Gly Asn Ala Ser Leu Ala Thr Ser Ser Tyr	
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Phe Leu Phe Cys Leu Trp Arg Gly Arg Phe Gly Arg Gly Asn Ser Ser  
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Pro Pro Gly Val Cys Glu Phe Cys Glu Ala Asp Phe Gln Gly Glu Val  
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Val Phe Trp Cys Pro Leu Pro His Arg Glu Ser Glu Arg Asn Arg Pro  
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Pro Phe Gly Asp Gly Val Phe Gly Asp Cys Ser Arg Ala Val Ser Cys  
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Asn Val Cys Glu Lys Phe Pro Arg Ala Gly Thr Phe Glu Ser Glu Arg  
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Glu Asp Ala Glu Ala Leu Glu Asp Ser Cys Thr Arg His Ser Gly Pro  
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Ala Arg Leu Trp Glu Glu Pro Val Gly Pro Phe Cys Ala Gly His Leu  
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Leu Glu Ala Lys Val Val Gly Trp Ile Ser Trp Arg Arg Ser Cys Cys  
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Phe Gly Phe Leu Trp Leu Val Thr Leu Gly Ser Thr Glu Thr Val Pro  
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Val Ser Ile Asp Cys Arg Asp Arg Gly Tyr Cys Ser Phe Phe Gly Pro  
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Asn Cys Cys Pro Ser Cys Arg Ser Ser Leu Ser Glu Asp Tyr Tyr Phe  
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Ala Ile Leu Glu Asp Cys Trp Arg Thr Ile His Gly Gly Thr Arg Arg  
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Pro Ile Ser Ser Gly Pro Thr Leu Cys Pro Phe Pro Ile Asn Lys Leu  
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Leu Ser Leu Phe Cys Tyr His Ile Val Met Val Phe Ile Phe Ile His  
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Leu Glu Gly Leu Ser Gly Ile Leu Ile Val His Lys Ser Thr Leu Pro  
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His Asn Phe Gly Leu Trp Leu His Phe Gly Ala His Ser Pro Gly Leu  
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Cys Ala Arg His Trp Cys Gly Tyr Leu Asn Gly Ala Thr Ala Gly Phe  
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Phe Tyr Tyr Leu Ala Gly Thr Asn Gln Leu Phe Gly Leu Ala Leu Val  
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Trp Gly Ser Thr Trp Ser Gly Arg Arg Ala Ala Leu Trp Cys Gly Gly  
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Arg Ser Ser Tyr Arg Gly His Arg Pro Ser Trp Trp Arg Gly Leu Gln  
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Ser Trp His Pro Arg Gln Gln Trp Thr Gln His Leu Phe Asp Arg Trp  
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Gly Leu Trp Gly Lys Ile His Ile Pro Phe Tyr Gly Ser Ile Gly Lys  
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Val Gly Val Gly Gly Trp Cys Arg Leu Arg Gly Gly Gly Thr Gly Arg  
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Cys Ile Ser Ala Arg His Ser Lys Met Ala Ala Ser Val Leu Leu Leu  
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Ile Cys Asn Gly Phe Arg Arg Gly Val Pro Asn Met Val Phe Ser Gly  
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Trp	Lys	Thr	Ala	Val	His	Val	Ile	Val	Gly	Pro	Pro	Gly	Cys	Gly	Lys		
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Arg	Ile	Thr	Thr	Leu	Gln	Phe	Trp	Lys	Thr	Ala	Gly	Glu	Gln	Ser	Thr		
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 Ile Asn Ser Gln Pro Tyr His Ile Ile Leu Gly Cys Gly Cys Ile Leu  
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 Glu Arg Ile Ala Gln Ala Cys Val Leu Asp Ile Gly Val Gly Ile Met  
 370 375 380  
 Glu Pro Gln Leu Val Ser Phe Ile Ile Trp Leu Glu Pro Ile Asn Cys  
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 Leu Pro Tyr Gly Val Ala Gly Gly Val Val Asn Ile Gly Val Ile Gly  
 420 425 430  
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 450 455 460  
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 Ser Arg Lys Ala Gly Ile Glu Asp Thr Arg Leu Ser Ala Pro Ser Val  
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 Thr Val Ser Glu Gly Gly Val Tyr Gln Ile Trp Ser Ser Pro Glu Asp  
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Phe	Leu	Phe	Trp	Pro	Ala	Val	Phe	Leu	Pro	Ala	Ile	Arg	Pro	Pro	Arg	
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Asn	Gly	Thr	Pro	Gln	Leu	Leu	Ser	Gln	Leu	Lys	Leu	Ser	Ile	Gly	Gly	
			260					265						270		



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 His Ile Lys Ile Thr Glu Ser Phe Leu Leu Ser His Arg Asn Gly Phe  
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 Tyr Phe Tyr Ser Phe Arg Gly Ser Phe Arg Ile Asn Ser Leu Asn Cys  
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 Ala Pro Arg Pro Val Cys Ser Thr Leu Val Trp Val Phe Lys Trp Ser  
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 His Ser Trp Phe Leu Leu Leu Phe Gly Trp Asn Gln Ser Ile Val Trp  
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 Ser Ser Ser Gly Leu Gly Val Lys Tyr Leu Glu Trp Val Lys Gly Cys  
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 Gly Val Thr Lys Leu Ala Ser Lys Ile Thr Thr Val Asp Pro Thr Pro  
 420 425 430  
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 Ile Arg Tyr Trp Lys Gly Arg Gly Arg Gly Leu Val Pro Pro Glu Gly  
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 Gly Arg Asn Trp Pro Met Leu Asn Leu Ser Ser Leu Thr Phe Gln Asp  
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 Gly Cys Glu Cys Pro Pro Leu Met Val Ser Thr Asn Ser Leu Glu Arg  
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 Ala Gly Cys Thr Lys Tyr Gly Leu Leu Arg Arg Met Phe Pro Arg Trp  
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<212> DNA

<213> Type A PWD circovirus

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tggtatccgg tcacacagtc tcagtagatc atcccaaggt aaccagccat aaaaatcatc     1080
caaaacaaca acttcttctc catgatatcc atcccaccac ttatttctac taggcttcca     1140
gtaggtgtcc ctaggctcag caaaattacg ggccactgg ctcttccac aaccgggcgg     1200
gccactatg acgtgtacag ctgtcttcca atcacgtgc tgcattctcc cgctcacttt     1260
caaaagttca gccagccgc ggaaatttct cacatacgtt acaggaaact gctcggctac     1320
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agtcaccaaa gaccccgctct ccaaaaggggt actcacagca gtagacaggt cgctgcgctt 1380  
 cccctgggttc cgcgagctc cacactcgat aagtatgtgg ccttctttac tgcagtattc 1440  
 tttattctgc tggtcgggttc ctttcgcttt ctcgatgtgg cagcgggcac caaaatacca 1500  
 cttcaccttg ttaaaagtct gcttcttagc aaaattcgca aaccctgga ggtgaggagt 1560  
 tctaccctct tccaaacctt cctcgccaca aacaaaataa tcaaaaaggg agattggaag 1620  
 ctcccgtatt ttgtttttct cctcctcgga aggattatta agggatgaaca cccacctctt 1680  
 atgggggtgc gggccgcttt tcttgcttgg cattttcact gacgctgccg aggtgctgcc 1740  
 gctgccgaag tgcgctggt 1759

<210> 6

<211> 567

<212> PRT

<213> Type A PWD circovirus

<400> 6

Gly	Ala	Cys	Lys	Pro	Leu	Pro	Leu	Val	Glu	Ala	Ala	Asp	Thr	Phe	Ile
1				5				10						15	
Gly	Leu	Leu	Phe	Leu	Pro	Gly	Cys	Gly	Trp	Leu	Leu	His	Thr	Asn	Val
			20					25					30		
Arg	Leu	Leu	Gly	Glu	Ser	Ser	Ser	Phe	Phe	Leu	Ile	Arg	Ser	Ser	Gly
			35				40					45			
Ile	Glu	Arg	Lys	Ser	Lys	Thr	Gln	Pro	Ser	Ser	Pro	Lys	Ser	Ser	Pro
	50					55					60				
Leu	Val	Gly	Arg	Trp	Pro	Asn	Ala	Phe	Lys	Ala	Leu	Phe	Cys	Val	Lys
65					70				75					80	
Leu	Leu	Thr	Phe	His	Tyr	Lys	Pro	Ala	Arg	Gln	Trp	Met	Ser	Phe	Ala
				85					90					95	
Phe	Pro	Val	Ser	Trp	Cys	Phe	Leu	Ser	Tyr	Gln	Leu	Leu	Ser	Pro	Trp
			100					105					110		
Met	Ser	Ile	Ser	His	Pro	Ala	Gly	Arg	Phe	Trp	Pro	Phe	Arg	Leu	Ser
		115					120					125			
Arg	Asp	Val	Ala	Thr	Leu	Val	Arg	Lys	Ser	Val	Pro	Asp	Lys	Thr	Val
	130					135						140			

Thr	Ala	Ser	Cys	Asn	Gly	Thr	Val	Tyr	Thr	Leu	Phe	Lys	Arg	Pro	Ser	145	150	155	160
Ala	Ser	Ser	Lys	Phe	Thr	Leu	Pro	Phe	Ile	Cys	Cys	Arg	Ser	Gln	Phe	165	170	175	
Val	Ala	Thr	Cys	Thr	Met	Thr	Pro	Gly	Gly	Pro	Gln	Pro	Phe	Leu	Trp	180	185	190	
His	Ala	Arg	Leu	Lys	Ala	Ser	Gly	Leu	Ser	Val	Gln	Phe	Gly	Leu	Leu	195	200	205	
Phe	Leu	His	His	Ser	Pro	Tyr	Pro	Ser	Ser	Thr	Thr	Thr	Lys	Ser	Ser	210	215	220	
Lys	Pro	Gln	Asn	Gly	Gln	Ser	Ser	Arg	Ser	Leu	Ser	His	Ser	Arg	Tyr	225	230	235	240
Gly	Asn	Val	Thr	Ser	Val	Leu	Pro	Pro	Val	Thr	Gly	Lys	Lys	Ala	Arg	245	250	255	
Leu	Ile	Lys	Ile	Val	Leu	Leu	Ala	Gly	Trp	Ser	His	Tyr	Glu	Glu	Val	260	265	270	
Ala	Thr	Gly	Ala	Thr	Ser	Ala	Arg	Arg	Leu	Ile	Val	Val	Lys	Cys	Asn	275	280	285	
Gln	Phe	Val	Ala	Pro	Ser	Cys	Asp	Val	Ser	Thr	Gly	Ser	Pro	Arg	Asn	290	295	300	
Ser	Ala	Thr	Ser	Gly	Gly	Gln	Ala	Arg	Lys	Gly	Tyr	Leu	Ile	Phe	Gln	305	310	315	320
Thr	Lys	Lys	Thr	Ile	Val	Asp	Tyr	His	Asn	Lys	Asn	Lys	Asn	Met	Leu	325	330	335	
Thr	Lys	Ser	Leu	Asn	Glu	Ser	Asn	Tyr	Met	Phe	Leu	Gly	Trp	Met	Ile	340	345	350	
Lys	Pro	Gln	Pro	Gln	Met	Lys	Ser	Arg	Met	Ala	Trp	Ala	Gln	Thr	Ser	355	360	365	
Ser	Met	Pro	Thr	Pro	Ile	Ile	Ser	Gly	Cys	Ser	Thr	Glu	Lys	Ile	Ile	370	375	380	
Gln	Ser	Ser	Gly	Ile	Leu	Gln	Lys	Thr	Ser	Gln	Asn	Pro	Pro	Ser	Thr	385	390	395	400
Gly	Pro	Thr	Thr	Pro	Leu	Pro	Ser	Gly	Pro	Thr	Ala	Pro	Pro	Thr	Thr	405	410	415	
Leu	Ile	Pro	Thr	Met	Pro	Trp	Thr	Pro	Pro	Pro	Pro	Leu	Thr	Pro	Met	420	425	430	

Trp Ser Leu Leu Leu Pro Gly Leu Val Glu Lys Ile Leu Pro Ser Pro  
 435 440 445

Thr Glu Pro Thr Phe Asn Met Asn Leu Arg Glu Leu Val Thr Thr Asn  
 450 455 460

Ser Leu Tyr Pro Tyr Pro Thr Pro Ala Ala Gln Pro Pro Ser Ser Ser  
 465 470 475 480

Ala Ser Thr Ser Asp Ser Thr Leu Met Gly Leu His Ser Arg Thr Asp  
 485 490 495

Glu Glu Pro Ser Tyr Leu Asn Glu Leu Phe Ala Pro Ile Ser Ser Val  
 500 505 510

Arg Arg Glu Ala Gly Asp Thr Val Thr Glu Ser Pro Pro Thr Tyr Trp  
 515 520 525

Ile His Asp Glu Gly Ser Ser Thr Glu Leu Ile Ala Ala Pro Ala Pro  
 530 535 540

Gly Asp Glu Ala Thr Val Gly Gly Gln Gly Arg Gly Ile Phe Thr Phe  
 545 550 555 560

Ser Thr Arg Gln Gln Leu Ile  
 565

<210> 7

<211> 580

<212> PRT

<213> Type A PWD circovirus

<400> 7

Trp Arg Val Glu Ala Ala Ala Ala Gly Arg Cys Arg His Phe His Trp  
 1 5 10 15

Ala Leu Phe Ala Ala Arg Leu Gly Met Leu Pro Pro His Glu Gly Lys  
 20 25 30

Ile Ile Arg Gly Leu Leu Leu Phe Val Phe Tyr Pro Leu Lys Trp Asp  
 35 40 45

Gly Lys Lys Ile Ile Lys Asn Thr Ala Leu Phe Thr Gln Phe Leu Thr  
 50 55 60

Ser Ser Arg Val Glu Leu Pro Lys Arg Ile Lys Ser Leu Leu Leu Ser  
 65 70 75 80



Gly	Leu	Gly	Thr	His	Glu	Val	Asn	Thr	His	Thr	Asn	Leu	His	Leu	Trp	370	375	380	
Leu	Gln	Asn	Arg	Lys	Asn	Asn	Pro	Gln	Phe	Trp	Asp	Ile	Thr	Gln	Asp	385	390	395	400
Leu	Glu	Pro	Lys	Pro	Thr	Phe	Tyr	Arg	Ser	His	Tyr	Thr	Phe	Pro	Gln	405	410	415	
Arg	Ile	Thr	His	Arg	Ser	Ser	Tyr	Asn	Ile	His	Pro	Asp	Tyr	Ala	Leu	420	425	430	
Asn	Thr	Ser	Pro	Thr	Val	Phe	Asn	Ala	Asp	Leu	Ile	Val	Val	Thr	Ser	435	440	445	
Gly	Val	Gly	Arg	Gln	Asn	Ser	Thr	Ile	Pro	Asp	Arg	Pro	Tyr	Phe	Glu	450	455	460	
Tyr	Lys	Ala	Lys	Arg	Ile	Arg	Tyr	Tyr	Gln	Phe	Pro	Leu	Pro	Leu	Pro	465	470	475	480
Asn	Thr	Gly	Gly	Ser	Pro	Pro	Leu	Phe	Gln	Gly	Ile	Asn	Phe	Arg	Leu	485	490	495	
Glu	Asn	Val	Asn	Trp	Ser	Pro	Gln	Ser	His	Gly	Gly	Arg	Ile	Thr	Leu	500	505	510	
Val	Phe	Glu	Arg	Ser	Leu	Arg	Ser	Asn	Phe	Ile	Gly	Thr	Lys	Arg	Arg	515	520	525	
Trp	Arg	Tyr	Arg	Asn	Arg	Phe	Ala	Pro	His	Val	Leu	Tyr	Pro	Arg	Arg	530	535	540	
Arg	Leu	Ile	Asn	Gly	Leu	His	Ser	Arg	Pro	Arg	Thr	Arg	Arg	Arg	Arg	545	550	555	560
Tyr	Arg	Arg	Arg	Pro	Trp	Thr	Met	Arg	Tyr	Phe	His	Phe	Phe	His	Ala	565	570	575	
Ala	Thr	Thr	Asn													580			

<210> 8

<211> 557

<212> PRT

<213> Type A PWD circovirus

<400> 8

Leu	Ala	Ser	Arg	Cys	Arg	Cys	Cys	Arg	Pro	Leu	Thr	Leu	Ser	Phe	Ala	1	5	10	15
Leu	Cys	Ser	Phe	Arg	Gly	Ala	Val	Gly	Tyr	Ser	Thr	Pro	Thr	Gly	Tyr	20	25	30	
Asp	Lys	Arg	Pro	Pro	Ser	Phe	Cys	Phe	Val	Pro	Ala	Glu	Leu	Arg	Gly	35	40	45	
Lys	Gln	Asn	Asn	Gln	Lys	His	Arg	Pro	Leu	Asn	Pro	Leu	Pro	Tyr	Phe	50	55	60	
Glu	Glu	Gly	Gly	Pro	Thr	Gln	Ser	Asn	Gln	Ser	Ala	Ser	Lys	Cys	Pro	65	70	75	80
Ser	Thr	Thr	Asn	Gly	His	Gly	Ser	Gly	Cys	Arg	Ser	Leu	Ser	Leu	Phe	85	90	95	
Arg	Gly	Ala	Ser	Tyr	Leu	Ile	Ser	Cys	Tyr	Leu	Leu	Gly	Cys	Val	Arg	100	105	110	
Thr	His	Leu	Glu	Ala	Ser	Gly	Pro	Ser	Ala	Cys	Arg	Gly	Thr	Gln	Gln	115	120	125	
Ser	Tyr	Gly	Lys	Pro	Ser	Pro	Thr	Lys	Pro	Ser	Gln	Leu	Arg	Ala	Thr	130	135	140	
Glu	Gln	Leu	Thr	His	Ser	Phe	Asn	Gly	Arg	Ala	Pro	Gln	Val	Lys	Ser	145	150	155	160
Leu	Ser	Arg	Ser	Ser	Ala	Ala	Ala	His	Asn	Ser	Ser	Leu	Gln	Val	Arg	165	170	175	
Leu	Pro	Gly	Ala	Arg	Asn	His	Ser	Ser	Gly	Thr	Pro	Gly	Tyr	Asn	Gln	180	185	190	
Gln	Ala	Pro	Cys	Arg	Ser	Ser	Ala	Tyr	Phe	Tyr	Thr	Thr	Pro	His	Ile	195	200	205	
Asp	His	Leu	Leu	Leu	Gln	Gln	Lys	Pro	His	Asn	Lys	His	Ser	Thr	Val	210	215	220	
Lys	Pro	His	Asp	Val	Ser	Val	Thr	His	Gly	Thr	Asp	Met	Ser	Gln	Leu	225	230	235	240
Ser	Leu	Pro	Tyr	Gln	Glu	Lys	Lys	Pro	Gly	Cys	Tyr	Lys	Ser	Trp	Cys	245	250	255	
Asp	Pro	Gly	Gly	Pro	Ile	Thr	Ser	Arg	Leu	Gln	Gln	Gly	Leu	Gln	Leu	260	265	270	
Leu	Glu	Arg	Asp	Ser	Ser	Lys	Ala	Ile	Lys	Ser	Ser	Gln	Gln	Leu	Val	275	280	285	



Ile	Trp	Pro	Pro	Val	Arg	Leu	Gly	Ile	Gln	Leu	Leu	Pro	Gly	Val	Arg	290	295	300
His	Gly	Lys	Gly	Met	Tyr	Phe	Leu	Asn	Ser	Leu	Arg	Lys	Gln	Met	Thr	305	310	315
Ile	Thr	Lys	Ile	Lys	Ile	Lys	Ser	Pro	Arg	Glu	Pro	Tyr	Ile	Arg	Gln	325	330	335
Ile	Thr	Cys	Leu	Tyr	Asp	Val	Lys	Gly	Cys	Leu	Lys	Pro	Ser	His	Asn	340	345	350
Cys	Lys	Pro	Ala	Cys	Leu	Gly	Pro	Arg	His	Ala	Arg	Cys	Gln	His	Pro	355	360	365
Tyr	Lys	Phe	Pro	Ala	Val	Val	Pro	Lys	Lys	Lys	Ala	Pro	Val	Leu	Asn	370	375	380
Asn	Pro	Arg	Ala	Arg	Thr	Gln	Pro	His	Leu	Val	Gln	Leu	Pro	Leu	Tyr	385	390	395
Leu	Ala	Ala	Lys	His	His	Pro	Pro	Leu	Leu	Leu	Tyr	Leu	Pro	Leu	Gly	405	410	415
Leu	Gln	His	Leu	Pro	Asn	Cys	Leu	Gln	Cys	Gly	Leu	Tyr	Cys	Cys	His	420	425	430
Val	Trp	Cys	Arg	Lys	Ser	Leu	His	His	Pro	Arg	Gln	Pro	Leu	Ile	Ile	435	440	445
Gly	Lys	Tyr	Pro	Leu	Ile	Pro	Phe	Thr	Pro	Thr	Pro	Pro	Gln	His	Arg	450	455	460
Arg	Leu	Pro	Pro	Pro	Val	Pro	Arg	His	Gln	Ile	Glu	Ala	Arg	Cys	Glu	465	470	475
Leu	Ile	Ala	Ala	Leu	Thr	Arg	Arg	Lys	His	His	Thr	Cys	Ile	Arg	Phe	485	490	495
Pro	Pro	Phe	Gln	Leu	Tyr	Gly	Asp	Lys	Pro	Ala	Met	Gln	Leu	Pro	Lys	500	505	510
Gln	Leu	Arg	Pro	Thr	Gly	Phe	Ile	Thr	Lys	Glu	Pro	Pro	His	Lys	Trp	515	520	525
Ser	Pro	Gln	Pro	Pro	Pro	Asp	Thr	Lys	Gln	Pro	Leu	Ala	Glu	Lys	Ala	530	535	540
Val	Asp	Asp	Leu	Leu	Ser	Leu	Leu	Ala	Ser	Ser	Tyr	Tyr				545	550	555

<210> 9

<211> 939

<212> DNA

<213> Type A PWD circovirus

<220>

<221> CDS

<222> (1)..(936)

<400> 9

atg cca agc aag aaa agc ggc ccg caa ccc cat aag agg tgg gtg ttc	48
Met Pro Ser Lys Lys Ser Gly Pro Gln Pro His Lys Arg Trp Val Phe	
1 5 10 15	
acc ctt aat aat cct tcc gag gag gag aaa aac aaa ata cgg gag ctt	96
Thr Leu Asn Asn Pro Ser Glu Glu Glu Lys Asn Lys Ile Arg Glu Leu	
20 25 30	
cca atc tcc ctt ttt gat tat ttt gtt tgt ggc gag gaa ggt ttg gaa	144
Pro Ile Ser Leu Phe Asp Tyr Phe Val Cys Gly Glu Glu Gly Leu Glu	
35 40 45	
gag ggt aga act cct cac ctc cag ggg ttt gcg aat ttt gct aag aag	192
Glu Gly Arg Thr Pro His Leu Gln Gly Phe Ala Asn Phe Ala Lys Lys	
50 55 60	
cag act ttt aac aag gtg aag tgg tat ttt ggt gcc cgc tgc cac atc	240
Gln Thr Phe Asn Lys Val Lys Trp Tyr Phe Gly Ala Arg Cys His Ile	
65 70 75 80	
gag aaa gcg aaa gga acc gac cag cag aat aaa gaa tac tgc agt aaa	288
Glu Lys Ala Lys Gly Thr Asp Gln Gln Asn Lys Glu Tyr Cys Ser Lys	
85 90 95	
gaa ggc cac ata ctt atc gag tgt gga gct ccg cgg aac cag ggg aag	336
Glu Gly His Ile Leu Ile Glu Cys Gly Ala Pro Arg Asn Gln Gly Lys	
100 105 110	
cgc agc gac ctg tct act gct gtg agt acc ctt ttg gag acg ggg tct	384
Arg Ser Asp Leu Ser Thr Ala Val Ser Thr Leu Leu Glu Thr Gly Ser	
115 120 125	
ttg gtg act gta gcc gag cag ttt cct gta acg tat gtg aga aat ttc	432
Leu Val Thr Val Ala Glu Gln Phe Pro Val Thr Tyr Val Arg Asn Phe	
130 135 140	
cgc ggg ctg gct gaa ctt ttg aaa gtg agc ggg aag atg cag cag cgt	480
Arg Gly Leu Ala Glu Leu Leu Lys Val Ser Gly Lys Met Gln Gln Arg	
145 150 155 160	

gat tgg aag aca gct gta cac gtc ata gtg ggc ccg ccc ggt tgt ggg	528
Asp Trp Lys Thr Ala Val His Val Ile Val Gly Pro Pro Gly Cys Gly	
165 170 175	
aag agc cag tgg gcc cgt aat ttt gct gag cct agg gac acc tac tgg	576
Lys Ser Gln Trp Ala Arg Asn Phe Ala Glu Pro Arg Asp Thr Tyr Trp	
180 185 190	
aag cct agt aga aat aag tgg tgg gat gga tat cat gga gaa gaa gtt	624
Lys Pro Ser Arg Asn Lys Trp Trp Asp Gly Tyr His Gly Glu Glu Val	
195 200 205	
gtt gtt ttg gat gat ttt tat ggc tgg tta cct tgg gat gat cta ctg	672
Val Val Leu Asp Asp Phe Tyr Gly Trp Leu Pro Trp Asp Asp Leu Leu	
210 215 220	
aga ctg tgt gac cgg tat cca ttg act gta gag act aaa ggg ggt act	720
Arg Leu Cys Asp Arg Tyr Pro Leu Thr Val Glu Thr Lys Gly Gly Thr	
225 230 235 240	
gtt cct ttt ttg gcc cgc agt att ttg att acc agc aat cag gcc ccc	768
Val Pro Phe Leu Ala Arg Ser Ile Leu Ile Thr Ser Asn Gln Ala Pro	
245 250 255	
cag gaa tgg tac tcc tca act gct gtc cca gct gta gaa gct ctc tat	816
Gln Glu Trp Tyr Ser Ser Thr Ala Val Pro Ala Val Glu Ala Leu Tyr	
260 265 270	
cgg agg att act act ttg caa ttt tgg aag act gct gga gaa caa tcc	864
Arg Arg Ile Thr Thr Leu Gln Phe Trp Lys Thr Ala Gly Glu Gln Ser	
275 280 285	
acg gag gta ccc gaa ggc cga ttt gaa gca gtg gac cca ccc tgt gcc	912
Thr Glu Val Pro Glu Gly Arg Phe Glu Ala Val Asp Pro Pro Cys Ala	
290 295 300	
ctt ttc cca tat aaa ata aat tac tga	939
Leu Phe Pro Tyr Lys Ile Asn Tyr	
305 310	

<210> 10

<211> 312

<212> PRT

<213> Type A PWD circovirus

<400> 10

Met	Pro	Ser	Lys	Lys	Ser	Gly	Pro	Gln	Pro	His	Lys	Arg	Trp	Val	Phe
1				5				10						15	

Thr Leu Asn Asn Pro Ser Glu Glu Glu Lys Asn Lys Ile Arg Glu Leu  
 20 25 30

Pro Ile Ser Leu Phe Asp Tyr Phe Val Cys Gly Glu Glu Gly Leu Glu  
 35 40 45

Glu Gly Arg Thr Pro His Leu Gln Gly Phe Ala Asn Phe Ala Lys Lys  
 50 55 60

Gln Thr Phe Asn Lys Val Lys Trp Tyr Phe Gly Ala Arg Cys His Ile  
 65 70 75 80

Glu Lys Ala Lys Gly Thr Asp Gln Gln Asn Lys Glu Tyr Cys Ser Lys  
 85 90 95

Glu Gly His Ile Leu Ile Glu Cys Gly Ala Pro Arg Asn Gln Gly Lys  
 100 105 110

Arg Ser Asp Leu Ser Thr Ala Val Ser Thr Leu Leu Glu Thr Gly Ser  
 115 120 125

Leu Val Thr Val Ala Glu Gln Phe Pro Val Thr Tyr Val Arg Asn Phe  
 130 135 140

Arg Gly Leu Ala Glu Leu Leu Lys Val Ser Gly Lys Met Gln Gln Arg  
 145 150 155 160

Asp Trp Lys Thr Ala Val His Val Ile Val Gly Pro Pro Gly Cys Gly  
 165 170 175

Lys Ser Gln Trp Ala Arg Asn Phe Ala Glu Pro Arg Asp Thr Tyr Trp  
 180 185 190

Lys Pro Ser Arg Asn Lys Trp Trp Asp Gly Tyr His Gly Glu Glu Val  
 195 200 205

Val Val Leu Asp Asp Phe Tyr Gly Trp Leu Pro Trp Asp Asp Leu Leu  
 210 215 220

Arg Leu Cys Asp Arg Tyr Pro Leu Thr Val Glu Thr Lys Gly Gly Thr  
 225 230 235 240

Val Pro Phe Leu Ala Arg Ser Ile Leu Ile Thr Ser Asn Gln Ala Pro  
 245 250 255

Gln Glu Trp Tyr Ser Ser Thr Ala Val Pro Ala Val Glu Ala Leu Tyr  
 260 265 270

Arg Arg Ile Thr Thr Leu Gln Phe Trp Lys Thr Ala Gly Glu Gln Ser  
 275 280 285

Thr Glu Val Pro Glu Gly Arg Phe Glu Ala Val Asp Pro Pro Cys Ala  
 290 295 300

Leu Phe Pro Tyr Lys Ile Asn Tyr  
 305 310

<210> 11

<211> 702

<212> DNA

<213> Type A PWD circovirus

<220>

<221> CDS

<222> (1)..(699)

<400> 11  
 atg acg tgg cca agg agg cgt tac cgc aga aga cgg acc cgc ccc cgc 48  
 Met Thr Trp Pro Arg Arg Arg Tyr Arg Arg Arg Arg Thr Arg Pro Arg  
 1 5 10 15

agc cat ctt gga aac atc ctc cgg aga aga cca tat ttg gta cac ccc 96  
 Ser His Leu Gly Asn Ile Leu Arg Arg Arg Pro Tyr Leu Val His Pro  
 20 25 30

gcc ttc aga aac cgt tac aga tgg cgc cga aag acg ggt atc ttc aat 144  
 Ala Phe Arg Asn Arg Tyr Arg Trp Arg Arg Lys Thr Gly Ile Phe Asn  
 35 40 45

tcc cgc ctt tct aga gaa ttt gta ctc acc ata aga gga gga cac tcg	192
Ser Arg Leu Ser Arg Glu Phe Val Leu Thr Ile Arg Gly Gly His Ser	
50 55 60	
cag cca tct tgg aat gtt aac gag ctg aga ttc aac atc ggc cag ttc	240
Gln Pro Ser Trp Asn Val Asn Glu Leu Arg Phe Asn Ile Gly Gln Phe	
65 70 75 80	
ctc ccc ccc tca ggc ggc acc aac ccc cta ccc cta cct ttc caa tac	288
Leu Pro Pro Ser Gly Gly Thr Asn Pro Leu Pro Phe Gln Tyr	
85 90 95	
tac cgt att aga aag gct aaa tat gaa ttt tac ccc aga gac ccc atc	336
Tyr Arg Ile Arg Lys Ala Lys Tyr Glu Phe Tyr Pro Arg Asp Pro Ile	
100 105 110	
acc tct aat caa aga ggt gtt ggg tcc act gtt gtt atc ttg gat gcc	384
Thr Ser Asn Gln Arg Gly Val Gly Ser Thr Val Val Ile Leu Asp Ala	
115 120 125	
aac ttt gta acc ccc tcc acc aac ttg gcc tat gac ccc tat att aac	432
Asn Phe Val Thr Pro Ser Thr Asn Leu Ala Tyr Asp Pro Tyr Ile Asn	
130 135 140	
tac tcc tcc cgc cac acc ata agg cag ccc ttt acc tac cac tcc agg	480
Tyr Ser Ser Arg His Thr Ile Arg Gln Pro Phe Thr Tyr His Ser Arg	
145 150 155 160	
tac ttc acc ccc aaa cca gag cta gac caa aca att gat tgg ttc cag	528
Tyr Phe Thr Pro Lys Pro Glu Leu Asp Gln Thr Ile Asp Trp Phe Gln	
165 170 175	
cca aat aat aaa aga aac cag ctg tgg ctc cat tta aat acc cac acc	576
Pro Asn Asn Lys Arg Asn Gln Leu Trp Leu His Leu Asn Thr His Thr	
180 185 190	
aat gtc gag cac aca ggc ctg ggc tat gcg ctc caa aat gca acc aca	624
Asn Val Glu His Thr Gly Leu Gly Tyr Ala Leu Gln Asn Ala Thr Thr	
195 200 205	
gcc caa aat tat gtg gta agg ttg act att tat gta caa ttc aga gaa	672
Ala Gln Asn Tyr Val Val Arg Leu Thr Ile Tyr Val Gln Phe Arg Glu	
210 215 220	
ttt atc ctg aaa gac cct cta aat gaa taa	702
Phe Ile Leu Lys Asp Pro Leu Asn Glu	
225 230	

<210> 12

<211> 233

<212> PRT

<213> Type A PWD circovirus

<400> 12

Met Thr Trp Pro Arg Arg Arg Tyr Arg Arg Arg Arg Thr Arg Pro Arg  
1 5 10 15

Ser His Leu Gly Asn Ile Leu Arg Arg Arg Pro Tyr Leu Val His Pro  
20 25 30

Ala Phe Arg Asn Arg Tyr Arg Trp Arg Arg Lys Thr Gly Ile Phe Asn  
35 40 45

Ser Arg Leu Ser Arg Glu Phe Val Leu Thr Ile Arg Gly Gly His Ser  
50 55 60

Gln Pro Ser Trp Asn Val Asn Glu Leu Arg Phe Asn Ile Gly Gln Phe  
65 70 75 80

Leu Pro Pro Ser Gly Gly Thr Asn Pro Leu Pro Leu Pro Phe Gln Tyr  
85 90 95

Tyr Arg Ile Arg Lys Ala Lys Tyr Glu Phe Tyr Pro Arg Asp Pro Ile  
100 105 110

Thr Ser Asn Gln Arg Gly Val Gly Ser Thr Val Val Ile Leu Asp Ala  
115 120 125

Asn Phe Val Thr Pro Ser Thr Asn Leu Ala Tyr Asp Pro Tyr Ile Asn  
130 135 140

Tyr Ser Ser Arg His Thr Ile Arg Gln Pro Phe Thr Tyr His Ser Arg  
145 150 155 160

Tyr Phe Thr Pro Lys Pro Glu Leu Asp Gln Thr Ile Asp Trp Phe Gln  
165 170 175

Pro Asn Asn Lys Arg Asn Gln Leu Trp Leu His Leu Asn Thr His Thr  
180 185 190

Asn Val Glu His Thr Gly Leu Gly Tyr Ala Leu Gln Asn Ala Thr Thr  
 195 200 205

Ala Gln Asn Tyr Val Val Arg Leu Thr Ile Tyr Val Gln Phe Arg Glu  
 210 215 220

Phe Ile Leu Lys Asp Pro Leu Asn Glu  
 225 230

<210> 13

<211> 621

<212> DNA

<213> Type A PWD circovirus

<220>

<221> CDS

<222> (1)..(618)

<400> 13

atg	ata	tcc	atc	cca	cca	ctt	att	tct	act	agg	ctt	cca	gta	ggg	gtc	48
Met	Ile	Ser	Ile	Pro	Pro	Leu	Ile	Ser	Thr	Arg	Leu	Pro	Val	Gly	Val	
1				5					10				15			

cct	agg	ctc	agc	aaa	att	acg	ggc	cca	ctg	gct	ctt	ccc	aca	acc	ggg	96
Pro	Arg	Leu	Ser	Lys	Ile	Thr	Gly	Pro	Leu	Ala	Leu	Pro	Thr	Thr	Gly	
		20					25					30				

cgg	gcc	cac	tat	gac	gtg	tac	agc	tgt	ctt	cca	atc	acg	ctg	ctg	cat	144
Arg	Ala	His	Tyr	Asp	Val	Tyr	Ser	Cys	Leu	Pro	Ile	Thr	Leu	Leu	His	
	35						40					45				

ctt	ccc	gct	cac	ttt	caa	aag	ttc	agc	cag	ccc	gcg	gaa	att	tct	cac	192
Leu	Pro	Ala	His	Phe	Gln	Lys	Phe	Ser	Gln	Pro	Ala	Glu	Ile	Ser	His	
	50					55				60						

ata	cgt	tac	agg	aaa	ctg	ctc	ggc	tac	agt	cac	caa	aga	ccc	cgt	ctc	240
Ile	Arg	Tyr	Arg	Lys	Leu	Leu	Gly	Tyr	Ser	His	Gln	Arg	Pro	Arg	Leu	
65					70				75					80		

caa	aag	ggg	act	cac	agc	agt	aga	cag	gtc	gct	gcg	ctt	ccc	ctg	gtt	288
Gln	Lys	Gly	Thr	His	Ser	Ser	Arg	Gln	Val	Ala	Ala	Leu	Pro	Leu	Val	
				85					90					95		



ccg cgg agc tcc aca ctc gat aag tat gtg gcc ttc ttt act gca gta 336  
 Pro Arg Ser Ser Thr Leu Asp Lys Tyr Val Ala Phe Phe Thr Ala Val  
                   100                                  105                                  110

ttc ttt att ctg ctg gtc ggt tcc ttt cgc ttt ctc gat gtg gca gcg 384  
 Phe Phe Ile Leu Leu Val Gly Ser Phe Arg Phe Leu Asp Val Ala Ala  
                   115                                  120                                  125

ggc acc aaa ata cca ctt cac ctt gtt aaa agt ctg ctt ctt agc aaa 432  
 Gly Thr Lys Ile Pro Leu His Leu Val Lys Ser Leu Leu Leu Ser Lys  
                   130                                  135                                  140

att cgc aaa ccc ctg gag gtg agg agt tct acc ctc ttc caa acc ttc 480  
 Ile Arg Lys Pro Leu Glu Val Arg Ser Ser Thr Leu Phe Gln Thr Phe  
 145                                  150                                  155                                  160

ctc gcc aca aac aaa ata atc aaa aag gga gat tgg aag ctc ccg tat 528  
 Leu Ala Thr Asn Lys Ile Ile Lys Lys Gly Asp Trp Lys Leu Pro Tyr  
                                   165                                  170                                  175

ttt gtt ttt ctc ctc ctc gga agg att att aag ggt gaa cac cca cct 576  
 Phe Val Phe Leu Leu Leu Gly Arg Ile Ile Lys Gly Glu His Pro Pro  
                   180                                  185                                  190

ctt atg ggg ttg cgg gcc gct ttt ctt gct tgg cat ttt cac tga 621  
 Leu Met Gly Leu Arg Ala Ala Phe Leu Ala Trp His Phe His  
                   195                                  200                                  205

<210> 14

<211> 206

<212> PRT

<213> Type A PWD circovirus

<400> 14

Met Ile Ser Ile Pro Pro Leu Ile Ser Thr Arg Leu Pro Val Gly Val  
 1                                  5                                  10                                  15

Pro Arg Leu Ser Lys Ile Thr Gly Pro Leu Ala Leu Pro Thr Thr Gly  
                   20                                  25                                  30

Arg Ala His Tyr Asp Val Tyr Ser Cys Leu Pro Ile Thr Leu Leu His  
                   35                                  40                                  45

Leu Pro Ala His Phe Gln Lys Phe Ser Gln Pro Ala Glu Ile Ser His  
                   50                                  55                                  60

Ile Arg Tyr Arg Lys Leu Leu Gly Tyr Ser His Gln Arg Pro Arg Leu  
 65 70 75 80

Gln Lys Gly Thr His Ser Ser Arg Gln Val Ala Ala Leu Pro Leu Val  
 85 90 95

Pro Arg Ser Ser Thr Leu Asp Lys Tyr Val Ala Phe Phe Thr Ala Val  
 100 105 110

Phe Phe Ile Leu Leu Val Gly Ser Phe Arg Phe Leu Asp Val Ala Ala  
 115 120 125

Gly Thr Lys Ile Pro Leu His Leu Val Lys Ser Leu Leu Leu Ser Lys  
 130 135 140

Ile Arg Lys Pro Leu Glu Val Arg Ser Ser Thr Leu Phe Gln Thr Phe  
 145 150 155 160

Leu Ala Thr Asn Lys Ile Ile Lys Lys Gly Asp Trp Lys Leu Pro Tyr  
 165 170 175

Phe Val Phe Leu Leu Leu Gly Arg Ile Ile Lys Gly Glu His Pro Pro  
 180 185 190

Leu Met Gly Leu Arg Ala Ala Phe Leu Ala Trp His Phe His  
 195 200 205

<210> 15

<211> 1767

<212> DNA

<213> Type B PWD circovirus

<220>

<221> CDS

<222> (1)..(111)

<220>

<221> CDS

<222> (115) .. (243)

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<221> CDS

<222> (271) .. (360)

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<222> (865) .. (984)

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<221> CDS

<222> (988)..(1173)

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<221> CDS

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<222> (1237)..(1359)

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<220>

<221> CDS

<222> (1480)..(1737)

<220>

<221> CDS

<222> (1741)..(1767)

<400> 15

acc agc gca ctt cgg cag cgg cag cac ctc ggc agc acc tca gca gca  
Thr Ser Ala Leu Arg Gln Arg Gln His Leu Gly Ser Thr Ser Ala Ala  
1 5 10 15

48

aca tgc cca gca aga aga atg gaa gaa gcg gac ccc aac ccc ata aaa	96
Thr Cys Pro Ala Arg Arg Met Glu Glu Ala Asp Pro Asn Pro Ile Lys	
20 25 30	
ggg ggt tgt tca ctc tga ata atc ctt ccg aag acg agc gca aga aaa	144
Gly Gly Cys Ser Leu Ile Ile Leu Pro Lys Thr Ser Ala Arg Lys	
35 40 45	
tac ggg atc ttc caa tat ccc tat ttg att att tta ttg ttg gcg agg	192
Tyr Gly Ile Phe Gln Tyr Pro Tyr Leu Ile Ile Leu Leu Leu Ala Arg	
50 55 60	
agg gta atg agg aag gac gaa cac ctc acc tcc agg ggt tcg cta att	240
Arg Val Met Arg Lys Asp Glu His Leu Thr Ser Arg Gly Ser Leu Ile	
65 70 75	
ttg tga aga agc aga ctt tta ata aag tga agt ggt att tgg gtg ccc	288
Leu Arg Ser Arg Leu Leu Ile Lys Ser Gly Ile Trp Val Pro	
80 85 90	
gct gcc aca tcg aga aag cga aag gaa cag atc agc aga ata aag aat	336
Ala Ala Thr Ser Arg Lys Arg Lys Glu Gln Ile Ser Arg Ile Lys Asn	
95 100 105	
act gca gta aag aag gca act tac tga tgg agt gtg gag ctc cta gat	384
Thr Ala Val Lys Lys Ala Thr Tyr Trp Ser Val Glu Leu Leu Asp	
110 115 120	
ctc agg gac aac gga gtg acc tgt cta ctg ctg tga gta cct tgt tgg	432
Leu Arg Asp Asn Gly Val Thr Cys Leu Leu Leu Val Pro Cys Trp	
125 130 135	
aga gcg gga gtc tgg tga ccg ttg cag agc agc acc ctg taa cgt ttg	480
Arg Ala Gly Val Trp Pro Leu Gln Ser Ser Thr Leu Arg Leu	
140 145 150	
tca gaa att tcc gcg ggc tgg ctg aac ttt tga aag tga gcg gga aaa	528
Ser Glu Ile Ser Ala Gly Trp Leu Asn Phe Lys Ala Gly Lys	
155 160 165	
tgc aga agc gtg att gga aga cta atg tac acg tca ttg tgg ggc cac	576
Cys Arg Ser Val Ile Gly Arg Leu Met Tyr Thr Ser Leu Trp Gly His	
170 175 180	
ctg ggt gtg gta aaa gca aat ggg ctg cta att ttg cag acc cgg aaa	624
Leu Gly Val Val Lys Ala Asn Gly Leu Leu Ile Leu Gln Thr Arg Lys	
185 190 195	
cca cat act gga aac cac cta gaa aca agt ggt ggg atg gtt acc atg	672
Pro His Thr Gly Asn His Leu Glu Thr Ser Gly Gly Met Val Thr Met	
200 205 210 215	

gtg aag aag tgg ttg tta ttg atg act ttt atg gct ggc tgc cct ggg	720
Val Lys Lys Trp Leu Leu Leu Met Thr Phe Met Ala Gly Cys Pro Gly	
220 225 230	
atg atc tac tga gac tgt gtg atc gat atc cat tga ctg tag aga cta	768
Met Ile Tyr Asp Cys Val Ile Asp Ile His Leu Arg Leu	
235 240	
aag gtg gaa ctg tac ctt ttt tgg ccc gca gta ttc tga tta cca gca	816
Lys Val Glu Leu Tyr Leu Phe Trp Pro Ala Val Phe Leu Pro Ala	
245 250 255	
atc aga ccc cgt tgg aat ggt act cct caa ctg ctg tcc cag ctg tag	864
Ile Arg Pro Arg Trp Asn Gly Thr Pro Gln Leu Leu Ser Gln Leu	
260 265 270	
aag ctc ttt atc gga gga tta ctt cct tgg tat ttt gga aga atg cta	912
Lys Leu Phe Ile Gly Gly Leu Leu Pro Trp Tyr Phe Gly Arg Met Leu	
275 280 285 290	
cag aac aat cca cgg agg aag ggg gcc agt tgc tca ccc ttt ccc ccc	960
Gln Asn Asn Pro Arg Arg Lys Gly Ala Ser Ser Ser Pro Phe Pro Pro	
295 300 305	
cat gcc ctg aat ttc cat atg aaa taa att act gag tct ttt tta tca	1008
His Ala Leu Asn Phe His Met Lys Ile Thr Glu Ser Phe Leu Ser	
310 315 320	
ctt cgt aat ggt ttt tat tat tca tta agg gtt aag tgg ggg gtc ttt	1056
Leu Arg Asn Gly Phe Tyr Tyr Ser Leu Arg Val Lys Trp Gly Val Phe	
325 330 335	
aaa att aaa ttc tct gaa ttg tac ata cat ggt tac acg gat att gta	1104
Lys Ile Lys Phe Ser Glu Leu Tyr Ile His Gly Tyr Thr Asp Ile Val	
340 345 350	
ttc ctg gtc gta tat act gtt ttc gaa cgc agt gcc gag gcc tac gtg	1152
Phe Leu Val Val Tyr Thr Val Phe Glu Arg Ser Ala Glu Ala Tyr Val	
355 360 365	
gtc tac att tcc agc agt ttg tag tct cag cca cag ctg gtt tct ttt	1200
Val Tyr Ile Ser Ser Ser Leu Ser Gln Pro Gln Leu Val Ser Phe	
370 375 380	
gtt gtt tgg ttg gaa gta atc aat agt gaa atc tag gac agg ttt ggg	1248
Val Val Trp Leu Glu Val Ile Asn Ser Glu Ile Asp Arg Phe Gly	
385 390 395	
ggt aaa gta ccg gga gtg gta gga gaa ggg ctg ggt tat ggt atg gcg	1296
Gly Lys Val Pro Gly Val Val Gly Glu Gly Leu Gly Tyr Gly Met Ala	
400 405 410 415	
gga gga gta gtt tac ata ggg gtc ata ggt gag ggc tgt ggc ctt tgt	1344
Gly Gly Val Val Tyr Ile Gly Val Ile Gly Glu Gly Cys Gly Leu Cys	
420 425 430	

tac	aaa	gtt	atc	atc	taa	aat	aac	agc	act	gga	gcc	cac	tcc	cct	gtc	1392
Tyr	Lys	Val	Ile	Ile		Asn	Asn	Ser	Thr	Gly	Ala	His	Ser	Pro	Val	
			435						440						445	

acc	ctg	ggg	gat	cgg	gga	gca	ggg	cca	gaa	ttc	aac	ctt	aac	ctt	tct	1440
Thr	Leu	Gly	Asp	Arg	Gly	Ala	Gly	Pro	Glu	Phe	Asn	Leu	Asn	Leu	Ser	
			450					455							460	

tat	tct	gta	gta	ttc	aaa	ggg	cac	aga	gcg	ggg	gtt	tga	ccc	ccc	tcc	1488
Tyr	Ser	Val	Val	Phe	Lys	Gly	His	Arg	Ala	Gly	Val		Pro	Pro	Ser	
			465					470							475	

tgg	ggg	aag	aaa	gtc	att	aat	att	gaa	tct	cat	cat	gtc	cac	cg	cca	1536
Trp	Gly	Lys	Lys	Val	Ile	Asn	Ile	Glu	Ser	His	His	Val	His	Arg	Pro	
			480					485							490	

gga	ggg	cgt	tct	gac	tgt	ggg	tcg	ctt	gac	agt	ata	tcc	gaa	ggg	gcg	1584
Gly	Gly	Arg	Ser	Asp	Cys	Gly	Ser	Leu	Asp	Ser	Ile	Ser	Glu	Gly	Ala	
			495					500							505	

gga	gag	gcg	ggg	gtt	gaa	gat	gcc	att	ttt	cct	tct	cca	gcg	gta	acg	1632
Gly	Glu	Ala	Gly	Val	Glu	Asp	Ala	Ile	Phe	Pro	Ser	Pro	Ala	Val	Thr	
			510					515							525	

gtg	gcg	ggg	gtg	gac	gag	cca	ggg	gcg	gcg	gcg	gag	gat	ctg	gcc	aag	1680
Val	Ala	Gly	Val	Asp	Glu	Pro	Gly	Ala	Ala	Ala	Glu	Asp	Leu	Ala	Lys	
				530											540	

atg	gct	gcg	ggg	gcg	gtg	tct	tct	tct	tcg	gta	acg	cct	cct	tgg	ata	1728
Met	Ala	Ala	Gly	Ala	Val	Ser	Ser	Ser	Ser	Val	Thr	Pro	Pro	Trp	Ile	
			545												555	

cgt	cat	atc	tga	aaa	cga	aag	aag	tgc	gct	gta	agt	att				1767
Arg	His	Ile		Lys	Arg	Lys	Lys	Cys	Ala	Val	Ser	Ile				
			560													

<210> 16

<211> 569

<212> PRT

<213> Type B PWD circovirus

<400> 16

Thr	Ser	Ala	Leu	Arg	Gln	Arg	Gln	His	Leu	Gly	Ser	Thr	Ser	Ala	Ala
1				5					10					15	



Thr	Cys	Pro	Ala	Arg	Arg	Met	Glu	Glu	Ala	Asp	Pro	Asn	Pro	Ile	Lys	20	25	30
Gly	Gly	Cys	Ser	Leu	Ile	Ile	Leu	Pro	Lys	Thr	Ser	Ala	Arg	Lys	Tyr	35	40	45
Gly	Ile	Phe	Gln	Tyr	Pro	Tyr	Leu	Ile	Ile	Leu	Leu	Leu	Ala	Arg	Arg	50	55	60
Val	Met	Arg	Lys	Asp	Glu	His	Leu	Thr	Ser	Arg	Gly	Ser	Leu	Ile	Leu	65	70	75
Arg	Ser	Arg	Leu	Leu	Ile	Lys	Ser	Gly	Ile	Trp	Val	Pro	Ala	Ala	Thr	85	90	95
Ser	Arg	Lys	Arg	Lys	Glu	Gln	Ile	Ser	Arg	Ile	Lys	Asn	Thr	Ala	Val	100	105	110
Lys	Lys	Ala	Thr	Tyr	Trp	Ser	Val	Glu	Leu	Leu	Asp	Leu	Arg	Asp	Asn	115	120	125
Gly	Val	Thr	Cys	Leu	Leu	Leu	Val	Pro	Cys	Trp	Arg	Ala	Gly	Val	Trp	130	135	140
Pro	Leu	Gln	Ser	Ser	Thr	Leu	Arg	Leu	Ser	Glu	Ile	Ser	Ala	Gly	Trp	145	150	155
Leu	Asn	Phe	Lys	Ala	Gly	Lys	Cys	Arg	Ser	Val	Ile	Gly	Arg	Leu	Met	165	170	175
Tyr	Thr	Ser	Leu	Trp	Gly	His	Leu	Gly	Val	Val	Lys	Ala	Asn	Gly	Leu	180	185	190
Leu	Ile	Leu	Gln	Thr	Arg	Lys	Pro	His	Thr	Gly	Asn	His	Leu	Glu	Thr	195	200	205
Ser	Gly	Gly	Met	Val	Thr	Met	Val	Lys	Lys	Trp	Leu	Leu	Leu	Met	Thr	210	215	220
Phe	Met	Ala	Gly	Cys	Pro	Gly	Met	Ile	Tyr	Asp	Cys	Val	Ile	Asp	Ile	225	230	235
																		240

His Leu Arg Leu Lys Val Glu Leu Tyr Leu Phe Trp Pro Ala Val Phe  
 245 250 255

Leu Pro Ala Ile Arg Pro Arg Trp Asn Gly Thr Pro Gln Leu Leu Ser  
 260 265 270

Gln Leu Lys Leu Phe Ile Gly Gly Leu Leu Pro Trp Tyr Phe Gly Arg  
 275 280 285

Met Leu Gln Asn Asn Pro Arg Arg Lys Gly Ala Ser Ser Ser Pro Phe  
 290 295 300

Pro Pro His Ala Leu Asn Phe His Met Lys Ile Thr Glu Ser Phe Leu  
 305 310 315 320

Ser Leu Arg Asn Gly Phe Tyr Tyr Ser Leu Arg Val Lys Trp Gly Val  
 325 330 335

Phe Lys Ile Lys Phe Ser Glu Leu Tyr Ile His Gly Tyr Thr Asp Ile  
 340 345 350

Val Phe Leu Val Val Tyr Thr Val Phe Glu Arg Ser Ala Glu Ala Tyr  
 355 360 365

Val Val Tyr Ile Ser Ser Ser Leu Ser Gln Pro Gln Leu Val Ser Phe  
 370 375 380

Val Val Trp Leu Glu Val Ile Asn Ser Glu Ile Asp Arg Phe Gly Gly  
 385 390 395 400

Lys Val Pro Gly Val Val Gly Glu Gly Leu Gly Tyr Gly Met Ala Gly  
 405 410 415

Gly Val Val Tyr Ile Gly Val Ile Gly Glu Gly Cys Gly Leu Cys Tyr  
 420 425 430

Lys Val Ile Ile Asn Asn Ser Thr Gly Ala His Ser Pro Val Thr Leu  
 435 440 445

Gly Asp Arg Gly Ala Gly Pro Glu Phe Asn Leu Asn Leu Ser Tyr Ser  
 450 455 460

Val Val Phe Lys Gly His Arg Ala Gly Val Pro Pro Ser Trp Gly Lys  
 465 470 475 480

Lys Val Ile Asn Ile Glu Ser His His Val His Arg Pro Gly Gly Arg  
 485 490 495

Ser Asp Cys Gly Ser Leu Asp Ser Ile Ser Glu Gly Ala Gly Glu Ala  
 500 505 510

Gly Val Glu Asp Ala Ile Phe Pro Ser Pro Ala Val Thr Val Ala Gly  
 515 520 525

Val Asp Glu Pro Gly Ala Ala Ala Glu Asp Leu Ala Lys Met Ala Ala  
 530 535 540

Gly Ala Val Ser Ser Ser Ser Val Thr Pro Pro Trp Ile Arg His Ile  
 545 550 555 560

Lys Arg Lys Lys Cys Ala Val Ser Ile  
 565

<210> 17

<211> 542

<212> PRT

<213> Type B PWD circovirus

<400> 17

Pro Ala His Phe Gly Ser Gly Ser Thr Ser Ala Ala Pro Gln Gln Gln  
 1 5 10 15

His Ala Gln Gln Glu Glu Trp Lys Lys Arg Thr Pro Thr Pro Lys Val  
 20 25 30

Gly Val His Ser Glu Ser Phe Arg Arg Arg Ala Gln Glu Asn Thr Gly  
 35 40 45

Ser Ser Asn Ile Pro Ile Leu Phe Tyr Cys Trp Arg Gly Gly Gly Arg  
 50 55 60

Thr	Asn	Thr	Ser	Pro	Pro	Gly	Val	Arg	Phe	Cys	Glu	Glu	Ala	Asp	Phe	
65					70					75					80	
Ser	Glu	Val	Val	Phe	Gly	Cys	Pro	Leu	Pro	His	Arg	Glu	Ser	Glu	Arg	
				85					90					95		
Asn	Arg	Ser	Ala	Glu	Arg	Ile	Leu	Gln	Arg	Arg	Gln	Leu	Thr	Asp	Gly	
			100					105					110			
Val	Trp	Ser	Ser	Ile	Ser	Gly	Thr	Thr	Glu	Pro	Val	Tyr	Cys	Cys	Glu	
		115					120					125				
Tyr	Leu	Val	Gly	Glu	Arg	Glu	Ser	Gly	Asp	Arg	Cys	Arg	Ala	Ala	Pro	
	130					135					140					
Cys	Asn	Val	Cys	Gln	Lys	Phe	Pro	Arg	Ala	Gly	Thr	Phe	Glu	Ser	Glu	
145					150					155					160	
Arg	Glu	Asn	Ala	Glu	Ala	Cys	Thr	Arg	His	Cys	Gly	Ala	Thr	Trp	Val	
				165					170					175		
Trp	Lys	Gln	Met	Gly	Cys	Phe	Cys	Arg	Pro	Gly	Asn	His	Ile	Leu	Glu	
			180					185					190			
Thr	Thr	Lys	Gln	Val	Val	Gly	Trp	Leu	Pro	Trp	Arg	Ser	Gly	Cys	Tyr	
		195					200					205				
Leu	Leu	Trp	Leu	Ala	Ala	Leu	Gly	Ser	Thr	Glu	Thr	Val	Ser	Ile	Ser	
	210					215					220					
Ile	Asp	Cys	Arg	Asp	Arg	Trp	Asn	Cys	Thr	Phe	Phe	Gly	Pro	Gln	Tyr	
225					230					235					240	
Ser	Asp	Tyr	Gln	Gln	Ser	Asp	Pro	Val	Gly	Met	Val	Leu	Leu	Asn	Cys	
				245					250					255		
Cys	Pro	Ser	Cys	Arg	Ser	Ser	Leu	Ser	Glu	Asp	Tyr	Phe	Leu	Gly	Ile	
			260					265					270			
Leu	Glu	Glu	Cys	Tyr	Arg	Thr	Ile	His	Gly	Gly	Arg	Gly	Pro	Val	Arg	
		275					280					285				
His	Pro	Phe	Pro	Pro	Met	Pro	Asn	Lys	Leu	Leu	Ser	Leu	Phe	Tyr	His	
	290					295					300					
Phe	Val	Met	Val	Phe	Ile	Ile	His	Gly	Leu	Ser	Gly	Gly	Ser	Leu	Lys	
305					310					315					320	
Leu	Asn	Ser	Leu	Asn	Cys	Thr	Tyr	Met	Val	Thr	Arg	Ile	Leu	Tyr	Ser	
				325					330					335		
Trp	Ser	Tyr	Ile	Leu	Phe	Ser	Asn	Ala	Val	Pro	Arg	Pro	Thr	Trp	Ser	
			340					345					350			

Thr Phe Pro Ala Val Cys Ser Leu Ser His Ser Trp Phe Leu Leu Leu  
 355 360 365  
 Phe Gly Trp Lys Ser Ile Val Lys Ser Arg Thr Gly Leu Gly Val Lys  
 370 375 380  
 Tyr Arg Glu Trp Glu Lys Gly Trp Val Met Val Trp Arg Glu Glu Val  
 385 390 395 400  
 Arg Ala Val Ala Phe Val Thr Lys Leu Ser Ser Lys Ile Thr Ala Leu  
 405 410 415  
 Glu Pro Thr Pro Leu Ser Pro Trp Val Ile Gly Glu Gln Gly Gln Asn  
 420 425 430  
 Ser Thr Leu Thr Phe Leu Ile Leu Tyr Ser Lys Gly Thr Glu Arg Gly  
 435 440 445  
 Phe Asp Pro Pro Pro Gly Gly Arg Lys Ser Leu Ile Leu Asn Leu Ile  
 450 455 460  
 Met Ser Thr Ala Gln Glu Gly Val Leu Thr Val Val Arg Leu Thr Val  
 465 470 475 480  
 Tyr Pro Lys Val Arg Glu Arg Arg Val Leu Lys Met Pro Phe Phe Leu  
 485 490 495  
 Leu Gln Arg Arg Trp Arg Gly Trp Thr Ser Gln Gly Arg Arg Arg Arg  
 500 505 510  
 Ile Trp Pro Arg Trp Leu Arg Gly Arg Cys Leu Leu Leu Arg Arg Leu  
 515 520 525  
 Leu Gly Tyr Val Ile Ser Glu Asn Glu Arg Ser Ala Leu Val  
 530 535 540

<210> 18

<211> 566

<212> PRT

<213> Type B PWD circovirus

<400> 18

Gln Arg Thr Ser Ala Ala Ala Ala Pro Arg Gln His Leu Ser Ser Asn  
 1 5 10 15  
 Met Pro Ser Lys Lys Asn Gly Arg Ser Gly Pro Gln Pro His Lys Arg  
 20 25 30

Trp	Val	Phe	Thr	Leu	Asn	Asn	Pro	Ser	Glu	Asp	Glu	Arg	Lys	Lys	Ile	35	40	45	
Arg	Asp	Leu	Pro	Ile	Ser	Leu	Phe	Asp	Tyr	Phe	Ile	Val	Gly	Glu	Glu	50	55	60	
Gly	Asn	Glu	Glu	Gly	Arg	Thr	Pro	His	Leu	Gln	Gly	Phe	Ala	Asn	Phe	65	70	75	80
Val	Lys	Lys	Gln	Thr	Phe	Asn	Lys	Val	Lys	Trp	Tyr	Leu	Gly	Ala	Arg	85	90	95	
Cys	His	Ile	Glu	Lys	Ala	Lys	Gly	Thr	Asp	Gln	Gln	Asn	Lys	Glu	Tyr	100	105	110	
Cys	Ser	Lys	Glu	Gly	Asn	Leu	Leu	Met	Glu	Cys	Gly	Ala	Pro	Arg	Ser	115	120	125	
Gln	Gly	Gln	Arg	Ser	Asp	Leu	Ser	Thr	Ala	Val	Ser	Thr	Leu	Leu	Glu	130	135	140	
Ser	Gly	Ser	Leu	Val	Thr	Val	Ala	Glu	Gln	His	Pro	Val	Thr	Phe	Val	145	150	155	160
Arg	Asn	Phe	Arg	Gly	Leu	Ala	Glu	Leu	Leu	Lys	Val	Ser	Gly	Lys	Met	165	170	175	
Gln	Lys	Arg	Asp	Trp	Lys	Thr	Asn	Val	His	Val	Ile	Val	Gly	Pro	Pro	180	185	190	
Gly	Cys	Gly	Lys	Ser	Lys	Trp	Ala	Ala	Asn	Phe	Ala	Asp	Pro	Glu	Thr	195	200	205	
Thr	Tyr	Trp	Lys	Pro	Pro	Arg	Asn	Lys	Trp	Trp	Asp	Gly	Tyr	His	Gly	210	215	220	
Glu	Glu	Val	Val	Val	Ile	Asp	Asp	Phe	Tyr	Gly	Trp	Leu	Pro	Trp	Asp	225	230	235	240
Asp	Leu	Leu	Arg	Leu	Cys	Asp	Arg	Tyr	Pro	Leu	Thr	Val	Glu	Thr	Lys	245	250	255	
Gly	Gly	Thr	Val	Pro	Phe	Leu	Ala	Arg	Ser	Ile	Leu	Ile	Thr	Ser	Asn	260	265	270	
Gln	Thr	Pro	Leu	Glu	Trp	Tyr	Ser	Ser	Thr	Ala	Val	Pro	Ala	Val	Glu	275	280	285	
Ala	Leu	Tyr	Arg	Arg	Ile	Thr	Ser	Leu	Val	Phe	Trp	Lys	Asn	Ala	Thr	290	295	300	
Glu	Gln	Ser	Thr	Glu	Glu	Gly	Gly	Gln	Phe	Val	Thr	Leu	Ser	Pro	Pro	305	310	315	320

Cys Pro Glu Phe Pro Tyr Glu Ile Asn Tyr Val Phe Phe Ile Thr Ser  
 325 330 335  
 Trp Phe Leu Leu Phe Ile Lys Gly Val Gly Gly Leu Ile Val His Thr  
 340 345 350  
 Trp Leu His Gly Tyr Cys Ile Pro Gly Arg Ile Tyr Cys Phe Arg Thr  
 355 360 365  
 Gln Cys Arg Gly Leu Arg Gly Leu His Phe Gln Gln Phe Val Val Ser  
 370 375 380  
 Ala Thr Ala Gly Phe Phe Cys Cys Leu Val Gly Ser Asn Gln Asn Leu  
 385 390 395 400  
 Gly Gln Val Trp Gly Ser Thr Gly Ser Gly Arg Arg Arg Ala Gly Leu  
 405 410 415  
 Trp Tyr Gly Gly Arg Ser Ser Leu His Arg Gly His Arg Gly Leu Trp  
 420 425 430  
 Pro Leu Leu Gln Ser Tyr His Leu Lys Gln His Trp Ser Pro Leu Pro  
 435 440 445  
 Cys His Pro Gly Ser Gly Ser Arg Ala Arg Ile Gln Pro Pro Phe Leu  
 450 455 460  
 Phe Cys Ser Ile Gln Arg Ala Gln Ser Gly Gly Leu Thr Pro Leu Leu  
 465 470 475 480  
 Gly Glu Glu Ser His Ile Ser Ser Cys Pro Pro Pro Arg Arg Ala Phe  
 485 490 495  
 Leu Trp Phe Ala Gln Tyr Ile Arg Arg Cys Gly Arg Gly Gly Cys Arg  
 500 505 510  
 Cys His Phe Ser Phe Ser Ser Gly Asn Gly Gly Gly Gly Gly Arg Ala  
 515 520 525  
 Arg Gly Gly Gly Gly Gly Ser Gly Gln Asp Gly Cys Gly Gly Gly Val  
 530 535 540  
 Phe Phe Phe Gly Asn Ala Ser Leu Asp Thr Ser Tyr Leu Lys Thr Lys  
 545 550 555 560  
 Glu Val Arg Cys Lys Tyr  
 565

<210> 19

<211> 1767

<212> DNA

<213> Type B PWD circovirus

<400> 19

aataactttaca	gcgcactttct	ttcgtttttca	gatatgacgt	atccaaggag	gcggttaccga	60
agaagaagac	accgcccccg	cagccatctt	ggccagatcc	tccgcccgcg	cccctggctc	120
gtccaccccc	gccaccgtta	ccgctggaga	aggaaaaatg	gcattcttcaa	cacccgcctc	180
tcccgcacct	tccgatatac	tgtcaagcga	accacagtca	gaacgccttc	ctgggcggtg	240
gacatgatga	gattcaatat	taatgacttt	cttccccag	gaggggggtc	aaacccccgc	300
tctgtgcctt	ttgaatacta	cagaataaga	aagggttaagg	ttgaattctg	gccctgctcc	360
ccgatcacc	aggggtgacag	gggagtgggc	tccagtgtctg	ttattttaga	tgataacttt	420
gtaacaaagg	ccacagccct	cacctatgac	ccctatgtaa	actactcttc	ccgccatacc	480
ataaccagc	ccttctccta	ccactcccgg	tactttaccc	ccaaacctgt	cctagatttc	540
actattgatt	acttccaacc	aaacaacaaa	agaaaccagc	tgtggctgag	actacaaact	600
gctggaaatg	tagaccacgt	aggcctcggc	actgcgttcg	aaaacagtat	atacgaccag	660
gaatacaata	tccgtgtaac	catgtatgta	caattcagag	aattttaattt	taaagacccc	720
ccacttaacc	cttaatgaat	aataaaaacc	attacgaagt	gataaaaaag	actcagtaat	780
ttatttcata	tggaaattca	gggcatgggg	gggaaaggg	gacgaactgg	cccccttcct	840
ccgtggattg	ttctgtagca	ttcttccaaa	ataccaagga	agtaatcctc	cgataaagag	900
cttctacagc	tgggacagca	gttgaggagt	accattccaa	cgggggtctga	ttgctggtaa	960
tcagaatact	gcggggccaaa	aaaggtacag	ttccaccttt	agtctctaca	gtcaatggat	1020
atcgatcaca	cagtctcagt	agatcatccc	agggcagcca	gccataaaaag	tcatacaataa	1080
caaccacttc	ttcaccatgg	taaccatccc	accacttggt	tctaggtggt	ttccagtatg	1140
tggtttccgg	gtctgcaaaa	ttagcagccc	atttgctttt	accacaccca	gggtggcccca	1200
caatgacgtg	tacattagtc	ttccaatcac	gcttctgcat	tttcccgttc	actttcaaaa	1260
gttcagccag	cccgcggaaa	tttctgacaa	acgttacagg	gtgctgctct	gcaacgggtca	1320
ccagactccc	gctctccaac	aagggtactca	cagcagtaga	caggtcactc	cgttgctcct	1380
gagatctagg	agctccacac	tccatcagta	agttgccttc	tttactgcag	tattctttat	1440
tctgtgatc	tgttcctttc	gctttctcga	tgtggcagcg	ggcacccaaa	taccacttca	1500
ctttattaaa	agtctgcttc	ttcacaaaat	tagcgaaccc	ctggaggtga	gggtgttcgtc	1560



cttcctcatt accctcctcg ccaacaataa aataatcaaa tagggatatt ggaagatccc 1620  
gtattttctt gcgctcgtct tcggaaggat tattcagagt gaacacccac cttttatggg 1680  
gttgggggtcc gcttcttcca ttcttcttgc tgggcatggt gctgctgagg tgctgccgag 1740  
gtgctgccgc tgccgaagtg cgctggt 1767

<210> 20

<211> 567

<212> PRT

<213> Type B PWD circovirus

<400> 20

Gly	Ala	Cys	Lys	Pro	Leu	Pro	Leu	Val	Glu	Ala	Ala	Gly	Cys	Cys	Cys		
1				5					10					15			
Ala	Trp	Cys	Ser	Ser	His	Phe	Phe	Arg	Val	Gly	Val	Gly	Tyr	Phe	Thr		
			20					25					30				
Pro	Thr	Glu	Ser	Tyr	Asp	Lys	Arg	Leu	Arg	Ala	Cys	Ser	Phe	Val	Pro		
		35					40					45					
Asp	Glu	Leu	Ile	Gly	Ile	Gln	Asn	Asn	Gln	Gln	Arg	Pro	Pro	Tyr	His		
	50					55					60						
Pro	Leu	Val	Phe	Val	Glu	Gly	Gly	Pro	Thr	Arg	Asn	Gln	Ser	Ser	Ala		
65					70				75						80		
Ser	Lys	Tyr	Leu	Ser	Thr	Thr	Asn	Pro	His	Gly	Ser	Gly	Cys	Arg	Ser		
				85				90						95			
Leu	Ser	Leu	Phe	Leu	Asp	Ala	Ser	Tyr	Leu	Ile	Ser	Cys	Tyr	Leu	Leu		
			100					105					110				
Cys	Ser	Val	Ser	Pro	Thr	His	Leu	Glu	Ile	Glu	Pro	Val	Val	Ser	His		
		115					120					125					
Gly	Thr	Gln	Gln	Ser	Tyr	Arg	Thr	Pro	Ser	Arg	Ser	Asp	Pro	Ser	Arg		
	130					135					140						
Gln	Leu	Ala	Ala	Gly	Gln	Leu	Thr	Gln	Phe	Asn	Gly	Arg	Ala	Pro	Gln		
145					150					155					160		
Val	Lys	Ser	Leu	Ser	Arg	Ser	Phe	Ala	Ser	Ala	His	Asn	Ser	Ser	His		
				165					170						175		

Val	Arg	Gln	Pro	Ala	Val	Gln	Thr	His	Tyr	Phe	Cys	Ile	Pro	Gln	Asn	180	185	190	
Gln	Leu	Gly	Pro	Phe	Trp	Met	Ser	Ser	Val	Val	Phe	Cys	Thr	Thr	Pro	195	200	205	
His	Asn	Gly	His	His	Leu	Leu	Pro	Gln	Gln	His	Ser	Lys	His	Ser	Ala	210	215	220	
Ala	Arg	Pro	His	Asp	Val	Ser	Val	Thr	His	Asp	Ile	Asp	Met	Ser	Gln	225	230	235	240
Leu	Ser	Leu	His	Phe	Gln	Val	Lys	Lys	Pro	Gly	Cys	Tyr	Glu	Ser	Trp	245	250	255	
Cys	Asp	Ser	Gly	Thr	Pro	Ile	Thr	Ser	Arg	Leu	Gln	Gln	Gly	Leu	Gln	260	265	270	
Leu	Leu	Glu	Lys	Asp	Ser	Ser	Lys	Arg	Pro	Ile	Lys	Ser	Ser	His	Leu	275	280	285	
Val	Ile	Trp	Pro	Pro	Leu	Pro	Gly	Thr	Arg	Gly	Lys	Gly	Gly	Met	Gly	290	295	300	
Gln	Ile	Glu	Met	His	Phe	Leu	Asn	Ser	Leu	Arg	Lys	Lys	Thr	Ile	Thr	305	310	315	320
Lys	Ile	Ile	Pro	Asn	Leu	Pro	Pro	Asp	Lys	Phe	Asn	Phe	Glu	Arg	Phe	325	330	335	
Gln	Val	Tyr	Met	Thr	Val	Arg	Ile	Asn	Tyr	Glu	Gln	Asp	Tyr	Ile	Ser	340	345	350	
Asn	Glu	Phe	Ala	Thr	Gly	Leu	Gly	Val	His	Asp	Val	Asn	Gly	Ala	Thr	355	360	365	
Gln	Leu	Arg	Leu	Trp	Leu	Gln	Asn	Arg	Lys	Asn	Asn	Pro	Gln	Phe	Tyr	370	375	380	
Asp	Ile	Thr	Phe	Asp	Leu	Val	Pro	Lys	Pro	Thr	Phe	Tyr	Arg	Ser	His	385	390	395	400
Tyr	Ser	Phe	Pro	Gln	Thr	Ile	Thr	His	Arg	Ser	Ser	Tyr	Asn	Val	Tyr	405	410	415	
Pro	Asp	Tyr	Thr	Leu	Ala	Thr	Ala	Lys	Thr	Val	Pro	Asn	Asp	Asp	Leu	420	425	430	
Ile	Val	Ala	Ser	Ser	Gly	Val	Gly	Arg	Asp	Gly	Gln	Thr	Ile	Pro	Ser	435	440	445	
Cys	Pro	Trp	Phe	Glu	Val	Lys	Val	Lys	Arg	Ile	Arg	Tyr	Tyr	Glu	Phe	450	455	460	

Pro Val Ser Arg Pro Asn Ser Gly Gly Gly Pro Pro Leu Phe Asp Asn  
465 470 475 480

Ile Asn Phe Arg Met Met Asp Val Ala Trp Ser Pro Thr Arg Val Thr  
485 490 495

Thr Arg Lys Val Thr Tyr Gly Phe Thr Arg Ser Leu Arg Thr Asn Phe  
500 505 510

Ile Gly Asn Lys Arg Arg Trp Arg Tyr Arg His Arg Pro His Val Leu  
515 520 525

Trp Pro Arg Arg Arg Leu Ile Gln Gly Leu His Ser Arg Pro Arg His  
530 535 540

Arg Arg Arg Arg Tyr Arg Arg Arg Pro Tyr Thr Met Asp Ser Phe Ser  
545 550 555 560

Leu Leu Ala Ser Tyr Thr Asn  
565

<210> 21

<211> 566

<212> PRT

<213> Type B PWD circovirus

<400> 21

Trp Arg Val Glu Ala Ala Ala Ala Gly Arg Cys Cys Arg Leu Leu Leu  
1 5 10 15

Met Gly Leu Leu Phe Phe Pro Leu Leu Pro Gly Trp Gly Trp Leu Leu  
20 25 30

His Thr Asn Val Arg Phe Leu Gly Glu Ser Ser Ser Arg Leu Phe Ile  
35 40 45

Arg Ser Arg Gly Ile Asp Arg Asn Ser Lys Ile Thr Pro Ser Ser Pro  
50 55 60

Leu Ser Ser Pro Arg Val Gly Arg Trp Pro Asn Ala Leu Lys Thr Phe  
65 70 75 80

Phe Cys Val Lys Leu Leu Thr Phe His Tyr Lys Pro Ala Arg Gln Trp  
85 90 95

Met Ser Phe Ala Phe Pro Val Ser Cys Phe Leu Ser Tyr Gln Leu Leu  
100 105 110

Ser Pro Leu Lys Ser Ile Ser His Pro Ala Gly Leu Asp Pro Cys Arg  
 115 120 125  
 Leu Ser Arg Asp Val Ala Thr Leu Val Lys Asn Ser Leu Pro Leu Arg  
 130 135 140  
 Thr Val Thr Ala Ser Cys Cys Gly Thr Val Asn Thr Leu Phe Lys Arg  
 145 150 155 160  
 Pro Ser Ala Ser Ser Lys Phe Thr Leu Pro Phe Ile Cys Phe Arg Ser  
 165 170 175  
 Gln Phe Val Leu Thr Cys Thr Met Thr Pro Gly Gly Pro His Pro Leu  
 180 185 190  
 Leu Leu His Ala Ala Leu Lys Ala Ser Gly Ser Val Val Tyr Gln Phe  
 195 200 205  
 Gly Gly Leu Phe Leu His His Ser Pro Trp Pro Ser Ser Thr Thr Thr  
 210 215 220  
 Ile Ser Ser Lys Pro Gln Ser Gly Gln Ser Ser Arg Ser Leu Ser His  
 225 230 235 240  
 Ser Arg Tyr Gly Asn Val Thr Ser Val Leu Pro Pro Val Thr Gly Lys  
 245 250 255  
 Lys Ala Arg Leu Ile Arg Ile Val Leu Leu Val Gly Asn Ser His Tyr  
 260 265 270  
 Glu Glu Val Ala Thr Gly Ala Thr Ser Ala Arg Arg Leu Ile Val Glu  
 275 280 285  
 Lys Thr Asn Gln Phe Phe Ala Val Ser Cys Asp Val Ser Ser Pro Pro  
 290 295 300  
 Trp Asn Thr Val Arg Glu Gly Gly His Gly Ser Asn Gly Tyr Ser Ile  
 305 310 315 320  
 Phe Gln Thr Lys Lys Ile Val Glu Tyr His Asn Lys Asn Asn Met Leu  
 325 330 335  
 Pro Thr Pro Pro Arg Phe Ile Arg Gln Ile Thr Cys Val His Asn Cys  
 340 345 350  
 Pro Tyr Gln Ile Gly Pro Arg Ile Tyr Gln Lys Arg Val Cys His Arg  
 355 360 365  
 Pro Arg Arg Pro Arg Cys Lys Trp Cys Asn Thr Thr Glu Ala Val Ala  
 370 375 380  
 Pro Lys Lys Gln Gln Lys Thr Pro Leu Leu Tyr His Phe Arg Pro Cys  
 385 390 395 400

Thr Gln Pro Tyr Leu Val Pro Leu Pro Leu Leu Leu Ala Pro Asn His  
 405 410 415  
 Tyr Pro Pro Leu Leu Leu Lys Cys Leu Pro Leu His Pro Ser His Gly  
 420 425 430  
 Lys Asn Cys Leu Arg Phe Tyr Cys Cys Gln Leu Gly Ser Gly Gln Gly  
 435 440 445  
 Pro His Asp Pro Leu Leu Ala Leu Ile Gly Gly Lys Lys Asn Gln Leu  
 450 455 460  
 Ile Leu Ala Cys Leu Pro Pro Lys Val Gly Arg Arg Pro Ser Ser Leu  
 465 470 475 480  
 Tyr Gln Ile Glu Asp His Gly Gly Gly Leu Leu Ala Asn Gln Ser His  
 485 490 495  
 Asn Ala Gln Cys Tyr Ile Arg Leu His Pro Leu Pro Pro His Gln Leu  
 500 505 510  
 His Trp Lys Glu Lys Glu Leu Pro Leu Pro Pro Pro Pro Pro Arg Ala  
 515 520 525  
 Leu Pro Pro Pro Pro Pro Asp Pro Trp Ser Pro Gln Pro Pro Pro Thr  
 530 535 540  
 Lys Lys Lys Pro Leu Ala Glu Lys Ser Val Asp Tyr Arg Phe Val Phe  
 545 550 555 560  
 Ser Thr Arg Gln Leu Tyr  
 565

<210> 22

<211> 569

<212> PRT

<213> Type B PWD circovirus

<400> 22

Leu Ala Ser Arg Cys Arg Cys Cys Arg Pro Leu Val Glu Ala Ala Val  
 1 5 10 15  
 His Gly Ala Leu Leu Ile Ser Ser Ala Ser Gly Leu Gly Met Phe Pro  
 20 25 30  
 Pro His Glu Ser Gln Ile Ile Arg Gly Phe Val Leu Ala Leu Phe Tyr  
 35 40 45

Pro Ile Lys Trp Tyr Gly Lys Ile Ile Lys Asn Asn Ala Leu Leu Thr  
 50 55 60  
 Ile Leu Phe Ser Ser Cys Arg Val Glu Leu Pro Glu Ser Ile Lys His  
 65 70 75 80  
 Leu Leu Leu Ser Lys Ile Phe His Leu Pro Ile Gln Thr Gly Ala Ala  
 85 90 95  
 Val Asp Leu Phe Arg Phe Ser Cys Ile Leu Leu Ile Phe Phe Val Ala  
 100 105 110  
 Thr Phe Phe Ala Val Gln His Leu Thr Ser Ser Arg Ser Arg Leu Ser  
 115 120 125  
 Leu Pro Thr Val Gln Arg Ser Ser His Thr Gly Gln Gln Leu Ala Pro  
 130 135 140  
 Thr Gln His Gly Asn Cys Leu Leu Val Arg Tyr Arg Lys Asp Ser Ile  
 145 150 155 160  
 Glu Ala Pro Gln Ser Phe Lys Gln Phe His Ala Pro Phe His Leu Leu  
 165 170 175  
 Thr Ile Pro Leu Ser Ile Tyr Val Asp Asn His Pro Trp Arg Pro Thr  
 180 185 190  
 Thr Phe Ala Phe Pro Ser Ser Ile Lys Cys Val Arg Phe Gly Cys Val  
 195 200 205  
 Pro Phe Trp Arg Ser Val Leu Pro Pro Ile Thr Val Met Thr Phe Phe  
 210 215 220  
 His Asn Asn Asn Ile Val Lys Ile Ala Pro Gln Gly Pro Ile Ile Gln  
 225 230 235 240  
 Ser Gln Thr Ser Ser Ile Trp Gln Ser Tyr Leu Ser Phe Thr Ser Ser  
 245 250 255  
 Tyr Arg Lys Gln Gly Ala Thr Asn Gln Asn Gly Ala Ile Leu Gly Arg  
 260 265 270  
 Gln Phe Pro Val Gly Ser Ser Asp Trp Ser Tyr Phe Ser Lys Ile Pro  
 275 280 285  
 Pro Asn Ser Gly Gln Tyr Lys Pro Leu Ile Ser Cys Phe Leu Gly Arg  
 290 295 300  
 Leu Phe Pro Ala Leu Glu Asp Gly Lys Gly Gly Trp Ala Arg Phe Lys  
 305 310 315 320  
 Trp Ile Phe Trp Ile Val Ser Asp Lys Lys Asp Ser Arg Leu Pro Lys  
 325 330 335

Glu	Asn	Leu	Thr	Leu	His	Pro	Thr	Lys	Leu	Ile	Leu	Asn	Glu	Ser	Asn	
			340					345					350			
Tyr	Met	Cys	Pro	Val	Ser	Ile	Thr	Asn	Arg	Thr	Thr	Tyr	Val	Thr	Lys	
		355					360					365				
Ser	Arg	Leu	Ala	Ser	Ala	Thr	Thr	Met	Glu	Leu	Leu	Lys	Tyr	Asp	Gly	
	370					375					380					
Cys	Ser	Thr	Glu	Lys	Thr	Thr	Gln	Asn	Ser	Thr	Ile	Leu	Leu	Ser	Ile	
385					390					395					400	
Ser	Leu	Asn	Pro	Pro	Leu	Thr	Gly	Pro	Thr	Thr	Pro	Ser	Pro	Ser	Pro	
			405					410						415		
Pro	Ile	Ala	Pro	Pro	Thr	Thr	Met	Pro	Thr	Met	Pro	Ser	Pro	Gln	Pro	
		420					425						430			
Arg	Gln	Leu	Thr	Ile	Met	Phe	Leu	Leu	Val	Pro	Ala	Trp	Glu	Gly	Thr	
	435					440					445					
Val	Arg	Pro	Ser	Arg	Pro	Ala	Pro	Gly	Ser	Asn	Leu	Arg	Leu	Arg	Glu	
	450				455						460					
Glu	Thr	Thr	Asn	Leu	Pro	Cys	Leu	Ala	Pro	Thr	Gln	Gly	Gly	Glu	Gln	
465				470					475						480	
Pro	Phe	Phe	Thr	Met	Leu	Ile	Ser	Asp	Thr	Trp	Arg	Gly	Pro	Pro	Arg	
			485					490					495			
Glu	Ser	Gln	Pro	Glu	Ser	Ser	Leu	Ile	Asp	Ser	Pro	Ala	Pro	Ser	Ala	
		500					505					510				
Pro	Thr	Ser	Ser	Ala	Met	Lys	Gly	Glu	Gly	Ala	Thr	Val	Thr	Ala	Pro	
	515					520						525				
Thr	Ser	Ser	Gly	Pro	Ala	Ala	Ala	Ser	Ser	Arg	Ala	Leu	Ile	Ala	Ala	
	530				535					540						
Pro	Ala	Thr	Asp	Glu	Glu	Glu	Thr	Val	Gly	Gly	Gln	Ile	Arg	Ile	Gln	
545				550					555						560	
Phe	Arg	Phe	Phe	His	Ala	Thr	Leu	Ile								
			565													

<210> 23

<211> 945

<212> DNA

<213> Type B PWD circovirus

<220>

<221> CDS

<222> (1)..(942)

<400> 23

atg ccc agc aag aag aat gga aga agc gga ccc caa ccc cat aaa agg	48
Met Pro Ser Lys Lys Asn Gly Arg Ser Gly Pro Gln Pro His Lys Arg	
1 5 10 15	
tgg gtg ttc act ctg aat aat cct tcc gaa gac gag cgc aag aaa ata	96
Trp Val Phe Thr Leu Asn Asn Pro Ser Glu Asp Glu Arg Lys Lys Ile	
20 25 30	
cgg gat ctt cca ata tcc cta ttt gat tat ttt att gtt ggc gag gag	144
Arg Asp Leu Pro Ile Ser Leu Phe Asp Tyr Phe Ile Val Gly Glu Glu	
35 40 45	
ggt aat gag gaa gga cga aca cct cac ctc cag ggg ttc gct aat ttt	192
Gly Asn Glu Glu Gly Arg Thr Pro His Leu Gln Gly Phe Ala Asn Phe	
50 55 60	
gtg aag aag cag act ttt aat aaa gtg aag tgg tat ttg ggt gcc cgc	240
Val Lys Lys Gln Thr Phe Asn Lys Val Lys Trp Tyr Leu Gly Ala Arg	
65 70 75 80	
tgc cac atc gag aaa gcg aaa gga aca gat cag cag aat aaa gaa tac	288
Cys His Ile Glu Lys Ala Lys Gly Thr Asp Gln Gln Asn Lys Glu Tyr	
85 90 95	
tgc agt aaa gaa ggc aac tta ctg atg gag tgt gga gct cct aga tct	336
Cys Ser Lys Glu Gly Asn Leu Leu Met Glu Cys Gly Ala Pro Arg Ser	
100 105 110	
cag gga caa cgg agt gac ctg tct act gct gtg agt acc ttg ttg gag	384
Gln Gly Gln Arg Ser Asp Leu Ser Thr Ala Val Ser Thr Leu Leu Glu	
115 120 125	
agc ggg agt ctg gtg acc gtt gca gag cag cac cct gta acg ttt gtc	432
Ser Gly Ser Leu Val Thr Val Ala Glu Gln His Pro Val Thr Phe Val	
130 135 140	
aga aat ttc cgc ggg ctg gct gaa ctt ttg aaa gtg agc ggg aaa atg	480
Arg Asn Phe Arg Gly Leu Ala Glu Leu Leu Lys Val Ser Gly Lys Met	
145 150 155 160	
cag aag cgt gat tgg aag act aat gta cac gtc att gtg ggg cca cct	528
Gln Lys Arg Asp Trp Lys Thr Asn Val His Val Ile Val Gly Pro Pro	
165 170 175	



ggg tgt ggt aaa agc aaa tgg gct gct aat ttt gca gac ccg gaa acc	576
Gly Cys Gly Lys Ser Lys Trp Ala Ala Asn Phe Ala Asp Pro Glu Thr	
180 185 190	
aca tac tgg aaa cca cct aga aac aag tgg tgg gat ggt tac cat ggt	624
Thr Tyr Trp Lys Pro Pro Arg Asn Lys Trp Trp Asp Gly Tyr His Gly	
195 200 205	
gaa gaa gtg gtt gtt att gat gac ttt tat ggc tgg ctg ccc tgg gat	672
Glu Glu Val Val Val Ile Asp Asp Phe Tyr Gly Trp Leu Pro Trp Asp	
210 215 220	
gat cta ctg aga ctg tgt gat cga tat cca ttg act gta gag act aaa	720
Asp Leu Leu Arg Leu Cys Asp Arg Tyr Pro Leu Thr Val Glu Thr Lys	
225 230 235 240	
ggt gga act gta cct ttt ttg gcc cgc agt att ctg att acc agc aat	768
Gly Gly Thr Val Pro Phe Leu Ala Arg Ser Ile Leu Ile Thr Ser Asn	
245 250 255	
cag acc ccg ttg gaa tgg tac tcc tca act gct gtc cca gct gta gaa	816
Gln Thr Pro Leu Glu Trp Tyr Ser Ser Thr Ala Val Pro Ala Val Glu	
260 265 270	
gct ctt tat cgg agg att act tcc ttg gta ttt tgg aag aat gct aca	864
Ala Leu Tyr Arg Arg Ile Thr Ser Leu Val Phe Trp Lys Asn Ala Thr	
275 280 285	
gaa caa tcc acg gag gaa ggg ggc cag ttc gtc acc ctt tcc ccc cca	912
Glu Gln Ser Thr Glu Glu Gly Gly Gln Phe Val Thr Leu Ser Pro Pro	
290 295 300	
tgc cct gaa ttt cca tat gaa ata aat tac tga	945
Cys Pro Glu Phe Pro Tyr Glu Ile Asn Tyr	
305 310	

<210> 24

<211> 314

<212> PRT

<213> Type B PWD circovirus

<400> 24

Met Pro Ser Lys Lys Asn Gly Arg Ser Gly Pro Gln Pro His Lys Arg
1 5 10 15

Trp Val Phe Thr Leu Asn Asn Pro Ser Glu Asp Glu Arg Lys Lys Ile
20 25 30

Arg Asp Leu Pro Ile Ser Leu Phe Asp Tyr Phe Ile Val Gly Glu Glu  
 35 40 45

Gly Asn Glu Glu Gly Arg Thr Pro His Leu Gln Gly Phe Ala Asn Phe  
 50 55 60

Val Lys Lys Gln Thr Phe Asn Lys Val Lys Trp Tyr Leu Gly Ala Arg  
 65 70 75 80

Cys His Ile Glu Lys Ala Lys Gly Thr Asp Gln Gln Asn Lys Glu Tyr  
 85 90 95

Cys Ser Lys Glu Gly Asn Leu Leu Met Glu Cys Gly Ala Pro Arg Ser  
 100 105 110

Gln Gly Gln Arg Ser Asp Leu Ser Thr Ala Val Ser Thr Leu Leu Glu  
 115 120 125

Ser Gly Ser Leu Val Thr Val Ala Glu Gln His Pro Val Thr Phe Val  
 130 135 140

Arg Asn Phe Arg Gly Leu Ala Glu Leu Leu Lys Val Ser Gly Lys Met  
 145 150 155 160

Gln Lys Arg Asp Trp Lys Thr Asn Val His Val Ile Val Gly Pro Pro  
 165 170 175

Gly Cys Gly Lys Ser Lys Trp Ala Ala Asn Phe Ala Asp Pro Glu Thr  
 180 185 190

Thr Tyr Trp Lys Pro Pro Arg Asn Lys Trp Trp Asp Gly Tyr His Gly  
 195 200 205

Glu Glu Val Val Val Ile Asp Asp Phe Tyr Gly Trp Leu Pro Trp Asp  
 210 215 220

Asp Leu Leu Arg Leu Cys Asp Arg Tyr Pro Leu Thr Val Glu Thr Lys  
 225 230 235 240

Gly Gly Thr Val Pro Phe Leu Ala Arg Ser Ile Leu Ile Thr Ser Asn  
 245 250 255

Gln Thr Pro Leu Glu Trp Tyr Ser Ser Thr Ala Val Pro Ala Val Glu  
 260 265 270

Ala Leu Tyr Arg Arg Ile Thr Ser Leu Val Phe Trp Lys Asn Ala Thr  
 275 280 285

Glu Gln Ser Thr Glu Glu Gly Gly Gln Phe Val Thr Leu Ser Pro Pro  
 290 295 300

Cys Pro Glu Phe Pro Tyr Glu Ile Asn Tyr  
 305 310

<210> 25

<211> 702

<212> DNA

<213> Type B PWD circovirus

<220>

<221> CDS

<222> (1)..(699)

<400> 25

atg acg tat cca agg agg cgt tac cga aga aga aga cac cgc ccc cgc 48  
 Met Thr Tyr Pro Arg Arg Arg Tyr Arg Arg Arg Arg His Arg Pro Arg  
 1 5 10 15

agc cat ctt ggc cag atc ctc cgc cgc cgc ccc tgg ctc gtc cac ccc 96  
 Ser His Leu Gly Gln Ile Leu Arg Arg Arg Pro Trp Leu Val His Pro  
 20 25 30

cgc cac cgt tac cgc tgg aga agg aaa aat ggc atc ttc aac acc cgc 144  
 Arg His Arg Tyr Arg Trp Arg Arg Lys Asn Gly Ile Phe Asn Thr Arg  
 35 40 45

ctc tcc cgc acc ttc gga tat act gtc aag cga acc aca gtc aga acg 192  
 Leu Ser Arg Thr Phe Gly Tyr Thr Val Lys Arg Thr Thr Val Arg Thr  
 50 55 60

ccc tcc tgg gcg gtg gac atg atg aga ttc aat att aat gac ttt ctt 240  
 Pro Ser Trp Ala Val Asp Met Met Arg Phe Asn Ile Asn Asp Phe Leu  
 65 70 75 80

ccc cca gga ggg ggg tca aac ccc cgc tct gtg ccc ttt gaa tac tac	288
Pro Pro Gly Gly Gly Ser Asn Pro Arg Ser Val Pro Phe Glu Tyr Tyr	
85 90 95	
aga ata aga aag gtt aag gtt gaa ttc tgg ccc tgc tcc ccg atc acc	336
Arg Ile Arg Lys Val Lys Val Glu Phe Trp Pro Cys Ser Pro Ile Thr	
100 105 110	
cag ggt gac agg gga gtg ggc tcc agt gct gtt att tta gat gat aac	384
Gln Gly Asp Arg Gly Val Gly Ser Ser Ala Val Ile Leu Asp Asp Asn	
115 120 125	
ttt gta aca aag gcc aca gcc ctc acc tat gac ccc tat gta aac tac	432
Phe Val Thr Lys Ala Thr Ala Leu Thr Tyr Asp Pro Tyr Val Asn Tyr	
130 135 140	
tcc tcc cgc cat acc ata acc cag ccc ttc tcc tac cac tcc cgg tac	480
Ser Ser Arg His Thr Ile Thr Gln Pro Phe Ser Tyr His Ser Arg Tyr	
145 150 155 160	
ttt acc ccc aaa cct gtc cta gat ttc act att gat tac ttc caa cca	528
Phe Thr Pro Lys Pro Val Leu Asp Phe Thr Ile Asp Tyr Phe Gln Pro	
165 170 175	
aac aac aaa aga aac cag ctg tgg ctg aga cta caa act gct gga aat	576
Asn Asn Lys Arg Asn Gln Leu Trp Leu Arg Leu Gln Thr Ala Gly Asn	
180 185 190	
gta gac cac gta ggc ctc ggc act gcg ttc gaa aac agt ata tac gac	624
Val Asp His Val Gly Leu Gly Thr Ala Phe Glu Asn Ser Ile Tyr Asp	
195 200 205	
cag gaa tac aat atc cgt gta acc atg tat gta caa ttc aga gaa ttt	672
Gln Glu Tyr Asn Ile Arg Val Thr Met Tyr Val Gln Phe Arg Glu Phe	
210 215 220	
aat ttt aaa gac ccc cca ctt aac cct taa	702
Asn Phe Lys Asp Pro Pro Leu Asn Pro	
225 230	

<210> 26

<211> 233

<212> PRT

<213> Type B PWD circovirus

<400> 26

Met Thr Tyr Pro Arg Arg Arg Tyr Arg Arg Arg Arg His Arg Pro Arg  
 1 5 10 15  
 Ser His Leu Gly Gln Ile Leu Arg Arg Arg Pro Trp Leu Val His Pro  
 20 25 30  
 Arg His Arg Tyr Arg Trp Arg Arg Lys Asn Gly Ile Phe Asn Thr Arg  
 35 40 45  
 Leu Ser Arg Thr Phe Gly Tyr Thr Val Lys Arg Thr Thr Val Arg Thr  
 50 55 60  
 Pro Ser Trp Ala Val Asp Met Met Arg Phe Asn Ile Asn Asp Phe Leu  
 65 70 75 80  
 Pro Pro Gly Gly Gly Ser Asn Pro Arg Ser Val Pro Phe Glu Tyr Tyr  
 85 90 95  
 Arg Ile Arg Lys Val Lys Val Glu Phe Trp Pro Cys Ser Pro Ile Thr  
 100 105 110  
 Gln Gly Asp Arg Gly Val Gly Ser Ser Ala Val Ile Leu Asp Asp Asn  
 115 120 125  
 Phe Val Thr Lys Ala Thr Ala Leu Thr Tyr Asp Pro Tyr Val Asn Tyr  
 130 135 140  
 Ser Ser Arg His Thr Ile Thr Gln Pro Phe Ser Tyr His Ser Arg Tyr  
 145 150 155 160  
 Phe Thr Pro Lys Pro Val Leu Asp Phe Thr Ile Asp Tyr Phe Gln Pro  
 165 170 175  
 Asn Asn Lys Arg Asn Gln Leu Trp Leu Arg Leu Gln Thr Ala Gly Asn  
 180 185 190  
 Val Asp His Val Gly Leu Gly Thr Ala Phe Glu Asn Ser Ile Tyr Asp  
 195 200 205  
 Gln Glu Tyr Asn Ile Arg Val Thr Met Tyr Val Gln Phe Arg Glu Phe  
 210 215 220

Asn Phe Lys Asp Pro Pro Leu Asn Pro  
 225 230

<210> 27

<211> 315

<212> DNA

<213> Type B PWD circovirus

<220>

<221> CDS

<222> (1)..(312)

<400> 27

atg gta acc atc cca cca ctt gtt tct agg tgg ttt cca gta tgt ggt	48
Met Val Thr Ile Pro Pro Leu Val Ser Arg Trp Phe Pro Val Cys Gly	
1 5 10 15	

ttc cgg gtc tgc aaa att agc agc cca ttt gct ttt acc aca ccc agg	96
Phe Arg Val Cys Lys Ile Ser Ser Pro Phe Ala Phe Thr Thr Pro Arg	
20 25 30	

tgg ccc cac aat gac gtg tac att agt ctt cca atc acg ctt ctg cat	144
Trp Pro His Asn Asp Val Tyr Ile Ser Leu Pro Ile Thr Leu Leu His	
35 40 45	

ttt ccc gct cac ttt caa aag ttc agc cag ccc gcg gaa att tct gac	192
Phe Pro Ala His Phe Gln Lys Phe Ser Gln Pro Ala Glu Ile Ser Asp	
50 55 60	

aaa cgt tac agg gtg ctg ctc tgc aac ggt cac cag act ccc gct ctc	240
Lys Arg Tyr Arg Val Leu Leu Cys Asn Gly His Gln Thr Pro Ala Leu	
65 70 75 80	

caa caa ggt act cac agc agt aga cag gtc act ccg ttg tcc ctg aga	288
Gln Gln Gly Thr His Ser Ser Arg Gln Val Thr Pro Leu Ser Leu Arg	
85 90 95	

tct agg agc tcc aca ctc cat cag taa	315
Ser Arg Ser Ser Thr Leu His Gln	
100	

<210> 28

<211> 104

<212> PRT

<213> Type B PWD circovirus

<400> 28

Met Val Thr Ile Pro Pro Leu Val Ser Arg Trp Phe Pro Val Cys Gly  
1 5 10 15

Phe Arg Val Cys Lys Ile Ser Ser Pro Phe Ala Phe Thr Thr Pro Arg  
20 25 30

Trp Pro His Asn Asp Val Tyr Ile Ser Leu Pro Ile Thr Leu Leu His  
35 40 45

Phe Pro Ala His Phe Gln Lys Phe Ser Gln Pro Ala Glu Ile Ser Asp  
50 55 60

Lys Arg Tyr Arg Val Leu Leu Cys Asn Gly His Gln Thr Pro Ala Leu  
65 70 75 80

Gln Gln Gly Thr His Ser Ser Arg Gln Val Thr Pro Leu Ser Leu Arg  
85 90 95

Ser Arg Ser Ser Thr Leu His Gln  
100

<210> 29

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 29

Val Asp Met Met Arg Phe Asn Ile Asn Asp Phe Leu Pro Pro Gly  
1 5 10 15

<210> 30

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 30

Gln	Gly	Asp	Arg	Gly	Val	Gly	Ser	Ser	Ala	Val	Ile	Leu	Asp	Asp
1				5					10				15	

<210> 31

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 31

Gly	Val	Gly	Ser	Ser	Ala	Val	Ile	Leu	Asp	Asp	Asn	Phe	Val	Thr
1				5				10					15	

<210> 32

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 32

Val	Asp	His	Val	Gly	Leu	Gly	Thr	Ala	Phe	Glu	Asn	Ser	Ile	Tyr
1				5				10					15	

<210> 33

<211> 8

<212> DNA

<213> Type A PWD circovirus

<400> 33  
tgtggcga



<210> 34

<211> 8

<212> DNA

<213> Type A PWD circovirus

<400> 34

agtttcct

8

<210> 35

<211> 20

<212> DNA

<213> Type A PWD circovirus

<400> 35

tcatttagag ggtctttcag

20

<210> 36

<211> 8

<212> DNA

<213> Type A PWD circovirus

<400> 36

gtcaacct

8

<210> 37

<211> 8

<212> DNA

<213> Type A PWD circovirus

<400> 37

gtggttgc

8

<210> 38

<211> 8

<212> DNA

<213> Type A PWD circovirus

<400> 38

agcccagg

8

<210> 39

<211> 8

<212> DNA

<213> Type A PWD circovirus

<400> 39

ttggctgg

8

<210> 40

<211> 12

<212> DNA

<213> Type A PWD circovirus

<400> 40

tctagctctg gt

12

<210> 41

<211> 12

<212> DNA

<213> Type A PWD circovirus

<400> 41

atctcagctc gt

12

<210> 42

<211> 12

<212> DNA

<213> Type A PWD circovirus

<400> 42

tgtcctcctc tt

12

<210> 43

<211> 8

<212> DNA

<213> Type A PWD circovirus

<400> 43

tctctaga

8

<210> 44

<211> 8

<212> DNA

<213> Type A PWD circovirus

<400> 44

tgtaccaa

8

<210> 45

<211> 8

<212> DNA

<213> Type A PWD circovirus

<400> 45

tccgtctt

8

<210> 46

<211> 20

<212> DNA

<213> Primer

<400> 46

gtgtgctcga cattggtgtg

20

<210> 47

<211> 20

<212> DNA

<213> Primer

<400> 47

tggaatgtta acgagctgag

20

<210> 48

<211> 20

<212> DNA

<213> Primer

<400> 48

ctcgcagcca tcttggaatg

20

<210> 49

<211> 20

<212> DNA

<213> Primer

<400> 49

cgcgcgtaat acgactcact

20

<210> 50

<211> 26

<212> DNA

<213> Primer

<400> 50

cctgtctact gctgtgagta ccttgt

26

<210> 51

<211> 26

<212> DNA

<213> Primer

<400> 51

gcagtagaca ggtcactccg ttgtcc

26

<210> 52

<211> 20

<212> DNA

<213> Primer

<400> 52

tggaatgtta actacctcaa

20

<210> 53

<211> 23

<212> DNA

<213> Primer

<400> 53

ggcggcgcca tctgtaacgg ttt

23

<210> 54

<211> 23

<212> DNA

<213> Primer

<400> 54

gatggcgccg aaagacgggt atc

23

<210> 55

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 55

Asn	Val	Asn	Glu	Leu	Arg	Phe	Asn	Ile	Gly	Gln	Phe	Leu	Pro	Pro
1				5					10				15	

<210> 56

<211> 14

<212> PRT

<213> Type A PWD circovirus

<400> 56

Thr	Ser	Asn	Gln	Arg	Gly	Val	Gly	Ser	Thr	Val	Val	Ile	Leu
1				5				10					

<210> 57

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 57

Arg	Gly	Val	Gly	Ser	Thr	Val	Val	Ile	Leu	Asp	Ala	Asn	Phe	Val
1				5					10					15

<210> 58

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 58

Phe	Thr	Ile	Asp	Tyr	Phe	Gln	Pro	Asn	Asn	Lys	Arg	Asn	Gln	Leu
1				5					10					15

<210> 59

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 59

Asp	Gln	Thr	Ile	Asp	Trp	Phe	Gln	Pro	Asn	Asn	Lys	Arg	Asn	Gln
1				5					10					15

<210> 60

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 60

Asn	Val	Glu	His	Thr	Gly	Leu	Gly	Tyr	Ala	Leu	Gln	Asn	Ala	Thr
1				5					10					15

<210> 61

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 61

His	Arg	Pro	Arg	Ser	His	Leu	Gly	Gln	Ile	Leu	Arg	Arg	Arg	Pro
1				5					10					15

<210> 62

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 62

Ser	His	Leu	Gly	Gln	Ile	Leu	Arg	Arg	Arg	Pro	Trp	Leu	Val	His
1				5					10					15

<210> 63

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 63

Gln	Ile	Leu	Arg	Arg	Arg	Pro	Trp	Leu	Val	His	Pro	Arg	His	Arg
1				5					10					15

<210> 64

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 64

Arg	Arg	Pro	Trp	Leu	Val	His	Pro	Arg	His	Arg	Tyr	Arg	Trp	Arg
1				5					10					15



<210> 65

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 65

Leu	Val	His	Pro	Arg	His	Arg	Tyr	Arg	Trp	Arg	Arg	Lys	Asn	Gly
1				5					10					15

<210> 66

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 66

Arg	His	Arg	Tyr	Arg	Trp	Arg	Arg	Lys	Asn	Gly	Ile	Phe	Asn	Thr
1				5					10					15

<210> 67

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 67

Arg	Trp	Arg	Arg	Lys	Asn	Gly	Ile	Phe	Asn	Thr	Arg	Leu	Ser	Arg
1				5					10					15

<210> 68

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 68

Lys	Asn	Gly	Ile	Phe	Asn	Thr	Arg	Leu	Ser	Arg	Thr	Phe	Gly	Tyr
1				5					10					15

<210> 69

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 69

Phe	Asn	Thr	Arg	Leu	Ser	Arg	Thr	Phe	Gly	Tyr	Thr	Val	Lys	Arg
1				5					10					15

<210> 70

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 70

Leu	Ser	Arg	Thr	Phe	Gly	Tyr	Thr	Val	Lys	Arg	Thr	Thr	Val	Arg
1				5					10					15

<210> 71

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 71

Phe	Gly	Tyr	Thr	Val	Lys	Arg	Thr	Thr	Val	Arg	Thr	Pro	Ser	Trp
1				5					10					15

<210> 72

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 72

Val	Lys	Arg	Thr	Thr	Val	Arg	Thr	Pro	Ser	Trp	Ala	Val	Asp	Met
1				5					10					15

<210> 73

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 73

Thr	Val	Arg	Thr	Pro	Ser	Trp	Ala	Val	Asp	Met	Met	Arg	Phe	Asn
1				5					10					15

<210> 74

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 74

Pro	Ser	Trp	Ala	Val	Asp	Met	Met	Arg	Phe	Asn	Ile	Asn	Asp	Phe
1				5					10					15

<210> 75

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 75

Arg	Phe	Asn	Ile	Asn	Asp	Phe	Leu	Pro	Pro	Gly	Gly	Gly	Ser	Asn
1				5					10					15

<210> 76

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 76

Asn	Asp	Phe	Leu	Pro	Pro	Gly	Gly	Gly	Ser	Asn	Pro	Arg	Ser	Val
1				5					10					15

<210> 77

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 77

Pro	Pro	Gly	Gly	Gly	Ser	Asn	Pro	Arg	Ser	Val	Pro	Phe	Glu	Tyr
1				5					10					15

<210> 78

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 78

Gly	Ser	Asn	Pro	Arg	Ser	Val	Pro	Phe	Glu	Tyr	Tyr	Arg	Ile	Arg
1				5					10					15

<210> 79

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 79

Arg	Ser	Val	Pro	Phe	Glu	Tyr	Tyr	Arg	Ile	Arg	Lys	Val	Lys	Val
1				5					10				15	

<210> 80

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 80

Phe	Glu	Tyr	Tyr	Arg	Ile	Arg	Lys	Val	Lys	Val	Glu	Phe	Trp	Pro
1				5					10					15

<210> 81

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 81

Arg	Ile	Arg	Lys	Val	Lys	Val	Glu	Phe	Trp	Pro	Cys	Ser	Pro	Ile
1				5					10					15

<210> 82

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 82

Val	Lys	Val	Glu	Phe	Trp	Pro	Cys	Ser	Pro	Ile	Thr	Gln	Gly	Asp
1				5					10					15

<210> 83

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 83

Phe	Trp	Pro	Cys	Ser	Pro	Ile	Thr	Gln	Gly	Asp	Arg	Gly	Val	Gly
1				5					10					15

<210> 84

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 84

Thr	Arg	Pro	Arg	Ser	His	Leu	Gly	Asn	Ile	Leu	Arg	Arg	Arg	Pro
1				5					10					15

<210> 85

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 85

Ser	His	Leu	Gly	Asn	Ile	Leu	Arg	Arg	Arg	Pro	Tyr	Leu	Val	His
1				5					10					15

<210> 86

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 86

Asn	Ile	Leu	Arg	Arg	Arg	Pro	Tyr	Leu	Val	His	Pro	Ala	Phe	Arg
1				5					10					15

<210> 87

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 87

Arg	Arg	Pro	Tyr	Leu	Val	His	Pro	Ala	Phe	Arg	Asn	Arg	Tyr	Arg
1				5					10					15

<210> 88

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 88

Leu	Val	His	Pro	Ala	Phe	Arg	Asn	Arg	Tyr	Arg	Trp	Arg	Arg	Lys
1				5					10					15

<210> 89

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 89

Ala	Phe	Arg	Asn	Arg	Tyr	Arg	Trp	Arg	Arg	Lys	Thr	Gly	Ile	Phe
1				5					10					15

<210> 90

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 90

Arg	Tyr	Arg	Trp	Arg	Arg	Lys	Thr	Gly	Ile	Phe	Asn	Ser	Arg	Leu
1				5					10					15

<210> 91

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 91

Arg	Arg	Lys	Thr	Gly	Ile	Phe	Asn	Ser	Arg	Leu	Ser	Arg	Glu	Phe
1				5					10					15

<210> 92

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 92

Gly	Ile	Phe	Asn	Ser	Arg	Leu	Ser	Arg	Glu	Phe	Val	Leu	Thr	Ile
1				5					10					15

<210> 93

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 93

Ser	Arg	Leu	Ser	Arg	Glu	Phe	Val	Leu	Thr	Ile	Arg	Gly	Gly	His
1				5					10					15

<210> 94

<211> 15

<212> PRT



<213> Type A PWD circovirus

<400> 94

Arg	Glu	Phe	Val	Leu	Thr	Ile	Arg	Gly	Gly	His	Ser	Gln	Pro	Ser
1				5					10					15

<210> 95

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 95

Leu	Thr	Ile	Arg	Gly	Gly	His	Ser	Gln	Pro	Ser	Trp	Asn	Val	Asn
1				5					10					15

<210> 96

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 96

Gly	Gly	His	Ser	Gln	Pro	Ser	Trp	Asn	Val	Asn	Glu	Leu	Arg	Phe
1				5					10					15

<210> 97

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 97

Gln	Pro	Ser	Trp	Asn	Val	Asn	Glu	Leu	Arg	Phe	Asn	Ile	Gly	Gln
1				5					10					15

<210> 98

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 98

Asn	Val	Asn	Glu	Leu	Arg	Phe	Asn	Ile	Gly	Gln	Phe	Leu	Pro	Pro
1				5					10					15

<210> 99

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 99

Leu	Arg	Phe	Asn	Ile	Gly	Gln	Phe	Leu	Pro	Pro	Ser	Gly	Gly	Thr
1				5					10					15

<210> 100

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 100

Ile	Gly	Gln	Phe	Leu	Pro	Pro	Ser	Gly	Gly	Thr	Asn	Pro	Leu	Pro
1				5					10					15

<210> 101

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 101

Leu	Pro	Pro	Ser	Gly	Gly	Thr	Asn	Pro	Leu	Pro	Leu	Pro	Phe	Gln
1				5					10					15

<210> 102

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 102

Gly	Gly	Thr	Asn	Pro	Leu	Pro	Leu	Pro	Phe	Gln	Tyr	Tyr	Arg	Ile
1				5					10					15

<210> 103

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 103

Pro	Leu	Pro	Leu	Pro	Phe	Gln	Tyr	Tyr	Arg	Ile	Arg	Lys	Ala	Lys
1				5					10					15

<210> 104

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 104

Pro	Phe	Gln	Tyr	Tyr	Arg	Ile	Arg	Lys	Ala	Lys	Tyr	Glu	Phe	Tyr
1				5					10					15

<210> 105

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 105

Tyr	Arg	Ile	Arg	Lys	Ala	Lys	Tyr	Glu	Phe	Tyr	Pro	Arg	Asp	Pro
1				5					10					15

<210> 106

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 106

Lys	Ala	Lys	Tyr	Glu	Phe	Tyr	Pro	Arg	Asp	Pro	Ile	Thr	Ser	Asn
1				5					10					15

<210> 107

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 107

Glu	Phe	Tyr	Pro	Arg	Asp	Pro	Ile	Thr	Ser	Asn	Gln	Arg	Gly	Val
1				5					10					15

<210> 108

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 108

Arg	Asp	Pro	Ile	Thr	Ser	Asn	Gln	Arg	Gly	Val	Gly	Ser	Thr	Val
1				5					10					15

<210> 109

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 109

Thr	Ser	Asn	Gln	Arg	Gly	Val	Gly	Ser	Thr	Val	Val	Ile	Leu	Asp
1				5					10					15

<210> 110

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 110

Gly	Val	Gly	Ser	Ser	Ala	Val	Ile	Leu	Asp	Asp	Asn	Phe	Val	Thr
1				5					10					15

<210> 111

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 111

Ser	Ala	Val	Ile	Leu	Asp	Asp	Asn	Phe	Val	Thr	Lys	Ala	Thr	Ala
1				5					10					15

<210> 112

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 112

Leu Asp Asp Asn Phe Val Thr Lys Ala Thr Ala Leu Thr Tyr Asp  
1 5 10 15

<210> 113

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 113

Phe Val Thr Lys Ala Thr Ala Leu Thr Tyr Asp Pro Tyr Val Asn  
1 5 10 15

<210> 114

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 114

Ala Thr Ala Leu Thr Tyr Asp Pro Tyr Val Asn Tyr Ser Ser Arg  
1 5 10 15

<210> 115

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 115

Thr Tyr Asp Pro Tyr Val Asn Tyr Ser Ser Arg His Thr Ile Thr  
1 5 10 15

<210> 116

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 116

Tyr	Val	Asn	Tyr	Ser	Ser	Arg	His	Thr	Ile	Thr	Gln	Pro	Phe	Ser
1				5					10					15

<210> 117

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 117

Ser	Ser	Arg	His	Thr	Ile	Thr	Gln	Pro	Phe	Ser	Tyr	His	Ser	Arg
1				5					10					15

<210> 118

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 118

Thr	Ile	Thr	Gln	Pro	Phe	Ser	Tyr	His	Ser	Arg	Tyr	Phe	Thr	Pro
1				5					10					15

<210> 119

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 119

Pro	Phe	Ser	Tyr	His	Ser	Arg	Tyr	Phe	Thr	Pro	Lys	Pro	Val	Leu
1				5					10					15

<210> 120

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 120

His	Ser	Arg	Tyr	Phe	Thr	Pro	Lys	Pro	Val	Leu	Asp	Phe	Thr	Ile
1				5				10						15

<210> 121

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 121

Phe	Thr	Pro	Lys	Pro	Val	Leu	Asp	Phe	Thr	Ile	Asp	Tyr	Phe	Gln
1				5				10						15

<210> 122

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 122

Pro	Val	Leu	Asp	Phe	Thr	Ile	Asp	Tyr	Phe	Gln	Pro	Asn	Asn	Lys
1				5					10					15

<210> 123

<211> 15

<212> PRT

<213> Type B PWD circovirus



<400> 123

Phe Thr Ile Asp Tyr Phe Gln Pro Asn Asn Lys Arg Asn Gln Leu  
1 5 10 15

<210> 124

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 124

Tyr Phe Gln Pro Asn Asn Lys Arg Asn Gln Leu Trp Leu Arg Leu  
1 5 10 15

<210> 125

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 125

Asn Asn Lys Arg Asn Gln Leu Trp Leu Arg Leu Gln Thr Ala Gly  
1 5 10 15

<210> 126

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 126

Asn Gln Leu Trp Leu Arg Leu Gln Thr Ala Gly Asn Val Asp His  
1 5 10 15

<210> 127

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 127

Leu	Arg	Leu	Gln	Thr	Ala	Gly	Asn	Val	Asp	His	Val	Gly	Leu	Gly
1				5					10				15	

<210> 128

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 128

Thr	Ala	Gly	Asn	Val	Asp	His	Val	Gly	Leu	Gly	Thr	Ala	Phe	Glu
1				5					10					15

<210> 129

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 129

Gly	Leu	Gly	Thr	Ala	Phe	Glu	Asn	Ser	Ile	Tyr	Asp	Gln	Glu	Tyr
1				5					10				15	

<210> 130

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 130

Ala	Phe	Glu	Asn	Ser	Ile	Tyr	Asp	Gln	Glu	Tyr	Asn	Ile	Arg	Val
1				5					10					15

<210> 131

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 131

Ser	Ile	Tyr	Asp	Gln	Glu	Tyr	Asn	Ile	Arg	Val	Thr	Met	Tyr	Val
1				5					10					15

<210> 132

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 132

Gln	Glu	Tyr	Asn	Ile	Arg	Val	Thr	Met	Tyr	Val	Gln	Phe	Arg	Glu
1				5					10					15

<210> 133

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 133

Ile	Arg	Val	Thr	Met	Tyr	Val	Gln	Phe	Arg	Glu	Phe	Asn	Phe	Lys
1				5					10					15

<210> 134

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 134

Met	Tyr	Val	Gln	Phe	Arg	Glu	Phe	Asn	Phe	Lys	Asp	Pro	Pro	Leu
1				5					10					15

<210> 135

<211> 15

<212> PRT

<213> Type B PWD circovirus

<400> 135

Val	Gln	Phe	Arg	Glu	Phe	Asn	Phe	Lys	Asp	Pro	Pro	Leu	Asn	Pro
1				5					10					15

<210> 136

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 136

Arg	Gly	Val	Gly	Ser	Thr	Val	Val	Ile	Leu	Asp	Ala	Asn	Phe	Val
1				5					10					15

<210> 137

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 137

Ser	Thr	Val	Val	Ile	Leu	Asp	Ala	Asn	Phe	Val	Thr	Pro	Ser	Thr
1				5					10					15

<210> 138

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 138

Ile	Leu	Asp	Ala	Asn	Phe	Val	Thr	Pro	Ser	Thr	Asn	Leu	Ala	Tyr
1				5					10					15

<210> 139

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 139

Asn	Phe	Val	Thr	Pro	Ser	Thr	Asn	Leu	Ala	Tyr	Asp	Pro	Tyr	Ile
1				5					10					15

<210> 140

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 140

Pro	Ser	Thr	Asn	Leu	Ala	Tyr	Asp	Pro	Tyr	Ile	Asn	Tyr	Ser	Ser
1				5					10					15

<210> 141

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 141

Leu	Ala	Tyr	Asp	Pro	Tyr	Ile	Asn	Tyr	Ser	Ser	Arg	His	Thr	Ile
1				5					10					15

<210> 142

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 142

Pro	Tyr	Ile	Asn	Tyr	Ser	Ser	Arg	His	Thr	Ile	Arg	Gln	Pro	Phe
1			5						10					15

<210> 143

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 143

Tyr	Ser	Ser	Arg	His	Thr	Ile	Arg	Gln	Pro	Phe	Thr	Tyr	His	Ser
1				5					10					15

<210> 144

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 144

His	Thr	Ile	Arg	Gln	Pro	Phe	Thr	Tyr	His	Ser	Arg	Tyr	Phe	Thr
1				5					10					15

<210> 145

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 145

Gln	Pro	Phe	Thr	Tyr	His	Ser	Arg	Tyr	Phe	Thr	Pro	Lys	Pro	Glu
1				5					10					15

<210> 146

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 146

Tyr	His	Ser	Arg	Tyr	Phe	Thr	Pro	Lys	Pro	Glu	Leu	Asp	Gln	Thr
1				5					10					15

<210> 147

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 147

Tyr	Phe	Thr	Pro	Lys	Pro	Glu	Leu	Asp	Gln	Thr	Ile	Asp	Trp	Phe
1				5					10					15

<210> 148

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 148

Lys	Pro	Glu	Leu	Asp	Gln	Thr	Ile	Asp	Trp	Phe	Gln	Pro	Asn	Asn
1				5					10					15

<210> 149

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 149

Asp	Gln	Thr	Ile	Asp	Trp	Phe	Gln	Pro	Asn	Asn	Lys	Arg	Asn	Gln
1				5					10					15

<210> 150

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 150

Asp	Trp	Phe	Gln	Pro	Asn	Asn	Lys	Arg	Asn	Gln	Leu	Trp	Leu	His
1				5					10					15

<210> 151

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 151

Pro	Asn	Asn	Lys	Arg	Asn	Gln	Leu	Trp	Leu	His	Leu	Asn	Thr	His
1				5					10					15

<210> 152

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 152

Arg	Asn	Gln	Leu	Trp	Leu	His	Leu	Asn	Thr	His	Thr	Asn	Val	Glu
1				5					10					15



<210> 153

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 153

Trp	Leu	His	Leu	Asn	Thr	His	Thr	Asn	Val	Glu	His	Thr	Gly	Leu
1				5					10					15

<210> 154

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 154

Asn	Thr	His	Thr	Asn	Val	Glu	His	Thr	Gly	Leu	Gly	Tyr	Ala	Leu
1				5					10					15

<210> 155

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 155

Asn	Val	Glu	His	Thr	Gly	Leu	Gly	Tyr	Ala	Leu	Gln	Asn	Ala	Thr
1				5					10					15

<210> 156

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 156

Thr	Gly	Leu	Gly	Tyr	Ala	Leu	Gln	Asn	Ala	Thr	Thr	Ala	Gln	Asn
1				5				10					15	

<210> 157

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 157

Tyr	Ala	Leu	Gln	Asn	Ala	Thr	Thr	Ala	Gln	Asn	Tyr	Val	Val	Arg
1				5				10					15	

<210> 158

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 158

Asn	Ala	Thr	Thr	Ala	Gln	Asn	Tyr	Val	Val	Arg	Leu	Thr	Ile	Tyr
1				5				10					15	

<210> 159

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 159

Ala	Gln	Asn	Tyr	Val	Val	Arg	Leu	Thr	Ile	Tyr	Val	Gln	Phe	Arg
1				5				10					15	

<210> 160

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 160

Val	Val	Arg	Leu	Thr	Ile	Tyr	Val	Gln	Phe	Arg	Glu	Phe	Ile	Leu
1				5				10					15	

<210> 161

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 161

Thr	Ile	Tyr	Val	Gln	Phe	Arg	Glu	Phe	Ile	Leu	Lys	Asp	Pro	Leu
1				5				10					15	

<210> 162

<211> 15

<212> PRT

<213> Type A PWD circovirus

<400> 162

Tyr	Val	Gln	Phe	Arg	Glu	Phe	Ile	Leu	Lys	Asp	Pro	Leu	Asn	Glu
1				5				10					15	

<210> 163

<211> 1759

<212> DNA

<213> Type A PWD circovirus

<400> 163

accagcgcac ttcggcagcg gcagcacctc ggcagcgtca gtgaaaatgc caagcaagaa 60

aagcggccccg caaccccata agagggtgggt gttcacccctt aataatcctt ccgaggagga 120

gaaaaacaaa atacgggagc ttccaatctc cctttttgat ttttttgttt gcgagagagga	180
aggttttggaa gagggtagaa ctctcacct ccaggggttt gcgaattttg ctaagaagca	240
gacttttaac aaggtgaagt ggtatttttg tgcccgtgc cacatcgaga aagcgaaagg	300
aaccgaccag cagaataaag aatactgcag taaagaaggc cacatactta tcgagtgtgg	360
agctccgagg aaccagggga agcgcagcga cctgtctact gctgtgagta cccttttggga	420
gacggggtct ttggtgactg tagccgagca gttccctgta acgtatgtga gaaatttccg	480
cgggctggct gaacttttga aagtgagcgg gaagatgcag aagcgtgatt ggaagacagc	540
tgtacacgtc atagtgggcc cgcccgttg tgggaagagc cagtgggccc gtaattttgc	600
tgagcctagg gacacctact ggaagcctag tagaaataag tgggtgggatg gatatcatgg	660
agaagaagtt gtgttttttg atgattttta tggttggtta ccttgggatg atctactgag	720
actgtgtgac cggtatccat tgactgtaga gactaaaggg ggtactgttc cttttttggc	780
ccgcagtatt ttgattacca gcaatcaggc cccccaggaa tgggtactcct caactgctgt	840
cccagctgta gaagctctct atcggaggat tactactttg caatttttga agactgctgg	900
agaacaatcc acggagggtac ccgaaggccg atttgaagca gtggaccac cctgtgccct	960
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cgacattggt gtgggtattt aaatggagcc acagctgggt tcttttatta tttgggtgga	1200
accaatcaat tgtttgggtcc agctcagggt tgggggtgaa gtacctggag tggtaggtaa	1260
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tggagggggt taaaaagttg gcatccaaga taacaacagt ggaccaaca cctctttgat	1380
tagaggtgat ggggtctctg gggtaaaatt catatttagc ctttctaata cggtagtatt	1440
ggaaaggtag gggtaggggg ttggtgccgc ctgagggggg gaggaactgg ccgatgttga	1500
atttcagcta gttaacattc caagatggct gcgagtatcc tccttttatg gtgagtacaa	1560
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tgaaggcggg gtgtgccaaa tatggtcttc tccggaggat gtttccaaga tggctgcggg	1680
ggcgggtcct tcttctgcgg taacgcctcc ttggccacgt catcctataa aagtgaagaa	1740
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<210> 164

<211> 1759

<212> DNA

<213> Type A PWD circovirus

<400> 164

accagcgcac	ttcggcagcg	gcagcacctc	ggcagcgtca	gtgaaaatgc	caagcaagaa	60
aagcgggccc	caaccccata	agaggtgggt	gttcaccctt	aataatcctt	ccgaggagga	120
gaaaaacaaa	atacgggagc	ttccaatctc	cctttttgat	tattttgttt	gcggagagga	180
aggtttgga	gagggtagaa	ctcctcacct	ccaggggttt	gctaattttg	ctaagaagca	240
gacttttaac	aaggtgaagt	ggtatttttg	tgcccgtgc	cacatcgaga	aagcgaaagg	300
aaccgaccag	cagaataaag	aatactgcag	taaagaaggc	cacatactta	tcgagtgtgg	360
agctccgcgg	aaccagggga	agcgcagcga	cctgtctact	gctgtgagta	cccttttgga	420
gacggggtct	ttggtgactg	tagccgagca	gttccttgta	acgtatgtga	gaaatttccg	480
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tgtacacgtc	atagtgggcc	cgcccggttg	tgggaagagc	cagtgggccc	gtaattttgc	600
tgagcctagc	gacacctact	ggaagcctag	tagaaataag	tggtgggatg	gatatcatgg	660
agaagaagtt	gttggttttg	atgattttta	tggctgggta	ccttgggatg	atctactgag	720
actgtgtgac	cggtatccat	tgactgtaga	gactaaaggc	ggtactgttc	cttttttggc	780
tcgcagtatt	ttgattacca	gcaatcaggc	cccccaggaa	tggtactcct	caactgctgt	840
cccagctgta	gaagctctct	atcggaggat	tactactttg	caattttgga	agactgctgg	900
agaacaatca	acggaggtac	ccgaaggccg	atttgaagca	gtggaccac	cctgtgccct	960
tttcccatat	aaaataaatt	actgagtctt	ttttgttata	acatcgtaat	ggtttttatt	1020
tttatttatt	tagaggggtct	tttaggataa	attctctgaa	ttgtacataa	atagtcagcc	1080
ttaccacata	attttgggct	gtggttgcat	tttgagcgc	atagcccagg	cctgtgtgct	1140
cgacattggg	gtgggtat	aaatggagcc	acagctgggt	tcttttatta	tttgggtgga	1200
accattcaat	tgtttgggtcc	agctcaggtt	tgggggtgaa	gtacctggag	tggtaggtaa	1260

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 ggaaaggtag gggtaggggg ttggtgccgc ctgagggggg gaggaactgg ccgatgttga 1500  
 atctgaggtg gttaacatgc caagatggct gcgagtatcc tccttttatg gtgattacaa 1560  
 attcttttaga aaggcggcaa ttgaagatac ccgtctttcg gcgccatctg taacgggttc 1620  
 tgaaggcggg gtgtgccaaa tatggtcttc tccggaggat gttccaaga tggctgcggg 1680  
 ggcgggtcct tcttctgcgg taacgcctcc ttggccacgt catcctataa aagtgaaga 1740  
 agtgcgctgc tgtagtatt 1759

<210> 165

<211> 312

<212> PRT

<213> Type A PWD circovirus

<400> 165

Met	Pro	Ser	Lys	Lys	Ser	Gly	Pro	Gln	Pro	His	Lys	Arg	Trp	Val	Phe	1	5	10	15
Thr	Leu	Asn	Asn	Pro	Ser	Gly	Gly	Gly	Lys	Asn	Lys	Ile	Arg	Gly	Leu	20	25	30	
Pro	Ile	Ser	Leu	Phe	Asp	Tyr	Phe	Val	Cys	Gly	Gly	Gly	Gly	Leu	Gly	35	40	45	
Gly	Gly	Arg	Thr	Pro	His	Leu	Gln	Gly	Phe	Ala	Asn	Phe	Ala	Lys	Lys	50	55	60	
Gln	Thr	Phe	Asn	Lys	Val	Lys	Trp	Tyr	Phe	Gly	Ala	Arg	Cys	His	Ile	65	70	75	80
Gly	Lys	Ala	Lys	Gly	Thr	Asp	Gln	Gln	Asn	Lys	Gly	Tyr	Cys	Ser	Lys	85	90	95	
Gly	Gly	His	Ile	Leu	Ile	Gly	Cys	Gly	Ala	Pro	Arg	Asn	Gln	Gly	Lys	100	105	110	
Arg	Ser	Asp	Leu	Ser	Thr	Ala	Val	Ser	Thr	Leu	Leu	Gly	Thr	Gly	Ser	115	120	125	

Leu Val Thr Val Ala Gly Gln Phe Pro Val Thr Tyr Val Arg Asn Phe  
 130 135 140  
 Arg Gly Leu Ala Gly Leu Leu Lys Val Ser Gly Lys Met Gln Gln Arg  
 145 150 155 160  
 Asp Trp Lys Thr Ala Val His Val Ile Val Gly Pro Pro Gly Cys Gly  
 165 170 175  
 Lys Ser Gln Trp Ala Arg Asn Phe Ala Gly Pro Arg Asp Thr Tyr Trp  
 180 185 190  
 Lys Pro Ser Arg Asn Lys Trp Trp Asp Gly Tyr His Gly Gly Gly Val  
 195 200 205  
 Val Val Leu Asp Asp Phe Tyr Gly Trp Leu Pro Trp Asp Asp Leu Leu  
 210 215 220  
 Arg Leu Cys Asp Arg Tyr Pro Leu Thr Val Gly Thr Lys Gly Gly Thr  
 225 230 235 240  
 Val Pro Phe Leu Ala Arg Ser Ile Leu Ile Thr Ser Asn Gln Ala Pro  
 245 250 255  
 Gln Gly Trp Tyr Ser Ser Thr Ala Val Pro Ala Val Gly Ala Leu Tyr  
 260 265 270  
 Arg Arg Ile Thr Thr Leu Gln Phe Trp Lys Thr Ala Gly Gly Gln Ser  
 275 280 285  
 Thr Gly Val Pro Gly Gly Arg Phe Gly Ala Val Asp Pro Pro Cys Ala  
 290 295 300  
 Leu Phe Pro Tyr Lys Ile Asn Tyr  
 305 310

<210> 166

<211> 312

<212> PRT

<213> Type A PWD circovirus

<400> 166

Met Pro Ser Lys Lys Ser Gly Pro Gln Pro His Lys Arg Trp Val Phe  
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 Thr Leu Asn Asn Pro Ser Gly Gly Gly Lys Asn Lys Ile Arg Gly Leu  
 20 25 30

Pro Ile Ser Leu Phe Asp Tyr Phe Val Cys Gly Gly Gly Gly Leu Gly  
 35 40 45  
 Gly Gly Arg Thr Ala His Leu Gln Gly Phe Ala Asn Phe Ala Lys Lys  
 50 55 60  
 Gln Thr Phe Asn Lys Val Lys Trp Tyr Phe Gly Ala Arg Cys His Ile  
 65 70 75 80  
 Gly Lys Ala Lys Gly Thr Asp Gln Gln Asn Lys Gly Tyr Cys Ser Lys  
 85 90 95  
 Gly Gly His Ile Leu Ile Gly Cys Gly Ala Pro Arg Asn Gln Gly Lys  
 100 105 110  
 Arg Ser Asp Leu Ser Thr Ala Val Ser Thr Leu Leu Gly Thr Gly Ser  
 115 120 125  
 Leu Val Thr Val Ala Gly Gln Phe Pro Val Thr Tyr Val Arg Asn Phe  
 130 135 140  
 Arg Gly Leu Ala Gly Leu Leu Lys Val Ser Gly Lys Met Gln Gln Arg  
 145 150 155 160  
 Asp Trp Lys Thr Ala Val His Val Ile Val Gly Pro Pro Gly Cys Gly  
 165 170 175  
 Lys Ser Gln Trp Ala Arg Asn Phe Ala Gly Pro Ser Asp Thr Tyr Trp  
 180 185 190  
 Lys Pro Ser Arg Asn Lys Trp Trp Asp Gly Tyr His Gly Gly Gly Val  
 195 200 205  
 Val Val Leu Asp Asp Phe Tyr Gly Trp Leu Pro Trp Asp Asp Leu Leu  
 210 215 220  
 Arg Leu Cys Asp Arg Tyr Pro Leu Thr Val Gly Thr Lys Gly Gly Thr  
 225 230 235 240  
 Val Pro Phe Leu Ala Arg Ser Ile Leu Ile Thr Ser Asn Gln Ala Pro  
 245 250 255  
 Gln Gly Trp Tyr Ser Ser Thr Ala Val Pro Ala Val Gly Ala Leu Tyr  
 260 265 270  
 Arg Arg Ile Thr Thr Leu Gln Phe Trp Lys Thr Ala Gly Gly Gln Ser  
 275 280 285  
 Thr Gly Val Pro Gly Gly Arg Phe Gly Ala Val Asp Pro Pro Cys Ala  
 290 295 300  
 Leu Phe Pro Tyr Lys Ile Asn Tyr  
 305 310

<210> 167



<211> 233

<212> PRT

<213> Type A PWD circovirus

<400> 167

Met Thr Trp Pro Arg Arg Arg Tyr Arg Arg Arg Arg Thr Arg Pro Arg  
1 5 10 15

Ser His Leu Gly Asn Ile Leu Arg Arg Arg Pro Tyr Leu Ala His Pro  
20 25 30

Ala Phe Arg Asn Arg Tyr Arg Trp Arg Arg Lys Thr Gly Ile Phe Asn  
35 40 45

Ser Arg Leu Ser Thr Glu Phe Val Leu Thr Ile Arg Gly Gly His Ser  
50 55 60

Gln Pro Ser Trp Asn Val Asn Tyr Leu Lys Phe Asn Ile Gly Gln Phe  
65 70 75 80

Leu Pro Pro Ser Gly Gly Thr Asn Pro Leu Pro Leu Pro Phe Gln Tyr  
85 90 95

Tyr Arg Ile Arg Lys Ala Lys Tyr Glu Phe Tyr Pro Arg Asp Pro Ile  
100 105 110

Thr Ser Asn Gln Arg Gly Val Gly Ser Thr Val Val Ile Leu Asp Ala  
115 120 125

Asn Phe Val Thr Pro Ser Thr Asn Leu Ala Tyr Asp Pro Tyr Ile Asn  
130 135 140

Tyr Ser Ser Arg His Thr Ile Arg Gln Pro Phe Thr Tyr His Ser Arg  
145 150 155 160

Tyr Phe Thr Pro Lys Pro Glu Leu Asp Gln Thr Ile Asp Trp Phe His  
165 170 175

Pro Asn Asn Lys Arg Asn Gln Leu Trp Leu His Leu Asn Thr His Thr  
180 185 190

Asn Val Glu His Thr Gly Leu Gly Tyr Ala Leu Gln Asn Ala Ala Thr  
195 200 205

Ala Gln Asn Tyr Val Val Arg Leu Thr Ile Tyr Val Gln Phe Arg Glu  
210 215 220

Phe Ile Leu Lys Asp Pro Leu Asn Lys  
225 230

<210> 168

<211> 233

<212> PRT

<213> Type A PWD circovirus

<400> 168

Met	Thr	Trp	Pro	Arg	Arg	Arg	Tyr	Arg	Arg	Arg	Arg	Thr	Arg	Pro	Arg	
1				5					10					15		
Ser	His	Leu	Gly	Asn	Ile	Leu	Arg	Arg	Arg	Pro	Tyr	Leu	Val	His	Pro	
			20					25					30			
Ala	Phe	Arg	Asn	Arg	Tyr	Arg	Trp	Arg	Arg	Lys	Thr	Gly	Ile	Phe	Asn	
			35					40					45			
Cys	Arg	Leu	Ser	Lys	Glu	Phe	Val	Ile	Thr	Ile	Arg	Gly	Gly	His	Ser	
		50				55					60					
Gln	Pro	Ser	Trp	Ile	Val	Asn	Ile	Leu	Arg	Phe	Asn	Ile	Gly	Gln	Phe	
65					70					75					80	
Leu	Pro	Pro	Ser	Gly	Gly	Thr	Asn	Pro	Leu	Pro	Leu	Pro	Phe	Gln	Tyr	
				85					90					95		
Tyr	Arg	Ile	Arg	Lys	Ala	Lys	Tyr	Glu	Phe	Tyr	Pro	Arg	Asp	Pro	Ile	
			100					105					110			
Thr	Ser	Asn	Glu	Arg	Gly	Val	Gly	Ser	Thr	Val	Val	Ile	Leu	Asp	Ala	
		115					120					125				
Asn	Phe	Val	Thr	Pro	Ser	Thr	Asn	Leu	Ala	Tyr	Asp	Pro	Tyr	Ile	Asn	
		130				135					140					
Tyr	Ser	Ser	Arg	His	Thr	Ile	Arg	Gln	Pro	Phe	Thr	Tyr	His	Ser	Arg	
145					150					155					160	
Tyr	Phe	Thr	Pro	Lys	Pro	Glu	Leu	Asp	Gln	Thr	Ile	Glu	Trp	Phe	His	
				165					170					175		
Pro	Asn	Asn	Lys	Arg	Asn	Gln	Leu	Trp	Leu	His	Leu	Asn	Thr	His	Thr	
			180					185					190			
Asn	Val	Glu	His	Thr	Gly	Leu	Gly	Tyr	Ala	Leu	Gln	Asn	Ala	Ala	Thr	
		195					200					205				
Ala	Gln	Asn	Tyr	Val	Val	Arg	Leu	Thr	Ile	Tyr	Val	Gln	Phe	Arg	Glu	
		210				215					220					

Phe Ile Leu Lys Asp Pro Leu Asn Lys  
225 230

<210> 169

<211> 206

<212> PRT

<213> Type A PWD circovirus

<400> 169

Met Ile Ser Ile Pro Pro Leu Ile Ser Thr Arg Leu Pro Val Gly Val  
1 5 10 15

Pro Arg Leu Ser Lys Ile Thr Gly Pro Leu Ala Leu Pro Thr Thr Gly  
20 25 30

Arg Ala His Tyr Asp Val Tyr Ser Cys Leu Pro Ile Thr Leu Leu His  
35 40 45

Leu Pro Ala His Phe Gln Lys Phe Ser Gln Pro Ala Glu Ile Ser His  
50 55 60

Ile Arg Tyr Arg Glu Leu Leu Gly Tyr Ser His Gln Arg Pro Arg Leu  
65 70 75 80

Gln Lys Gly Thr His Ser Ser Arg Gln Val Ala Ala Leu Pro Leu Val  
85 90 95

Pro Arg Ser Ser Thr Leu Asp Lys Tyr Val Ala Phe Phe Thr Ala Val  
100 105 110

Phe Phe Ile Leu Leu Val Gly Ser Phe Arg Phe Leu Asp Val Ala Ala  
115 120 125

Gly Thr Lys Ile Pro Leu His Leu Val Lys Ser Leu Leu Leu Ser Lys  
130 135 140

Ile Arg Lys Pro Leu Glu Val Arg Ser Ser Thr Leu Phe Gln Thr Phe  
145 150 155 160

Leu Ser Ala Asn Lys Ile Ile Lys Lys Gly Asp Trp Lys Leu Pro Tyr  
165 170 175

Phe Val Phe Leu Leu Leu Gly Arg Ile Ile Lys Gly Glu His Pro Pro  
180 185 190

Leu Met Gly Leu Arg Ala Ala Phe Leu Ala Trp His Phe His  
195 200 205

<210> 170

<211> 206

<212> PRT

<213> Type A PWD circovirus

<400> 170

Met	Ile	Ser	Ile	Pro	Pro	Leu	Ile	Ser	Thr	Arg	Leu	Pro	Val	Gly	Val
1				5					10					15	
Ala	Arg	Leu	Ser	Lys	Ile	Thr	Gly	Pro	Leu	Ala	Leu	Pro	Thr	Thr	Gly
			20					25					30		
Arg	Ala	His	Tyr	Asp	Val	Tyr	Ser	Cys	Leu	Pro	Ile	Thr	Leu	Leu	His
		35					40					45			
Leu	Pro	Ala	His	Phe	Gln	Lys	Phe	Ser	Gln	Pro	Ala	Glu	Ile	Ser	His
	50					55					60				
Ile	Arg	Tyr	Arg	Glu	Leu	Leu	Gly	Tyr	Ser	His	Gln	Arg	Pro	Arg	Leu
65					70					75					80
Gln	Lys	Gly	Thr	His	Ser	Ser	Arg	Gln	Val	Ala	Ala	Leu	Pro	Leu	Val
				85					90					95	
Pro	Arg	Ser	Ser	Thr	Leu	Asp	Lys	Tyr	Val	Ala	Phe	Phe	Thr	Ala	Val
			100					105					110		
Phe	Phe	Ile	Leu	Leu	Val	Gly	Ser	Phe	Arg	Phe	Leu	Asp	Val	Ala	Ala
		115					120					125			
Gly	Thr	Lys	Ile	Pro	Leu	His	Leu	Val	Lys	Ser	Leu	Leu	Leu	Ser	Lys
	130					135					140				
Ile	Arg	Lys	Pro	Leu	Glu	Val	Ser	Ser	Ser	Thr	Leu	Phe	Gln	Thr	Phe
145					150					155					160
Leu	Ser	Ala	Asn	Lys	Ile	Ile	Lys	Lys	Gly	Asp	Trp	Lys	Leu	Pro	Tyr
			165						170					175	
Phe	Val	Phe	Leu	Leu	Leu	Gly	Arg	Ile	Ile	Lys	Gly	Glu	His	Pro	Pro
			180					185					190		
Leu	Met	Gly	Leu	Arg	Ala	Ala	Phe	Leu	Ala	Trp	His	Phe	His		
		195					200					205			